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Immunisation of Bovines against Tuberculosis with the B.C.G. Vaccine.

By T. M. Doyle, F.R.C.V.S.

In view of the interest which veterinarians and stock-owners are showing in the tests of the B.C.G. anti-tuberculosis vaccine, it would appear opportune to survey briefly the progress achieved since its introduction in 1924, and the rate of progress which may reasonably be anticipated under existing conditions. The vaccine is the outcome of many years' patient research work by Dr. Calmette and M. Guerin, Pasteur Institute, Paris, two of the foremost authorities on tuberculosis in the world.

It may be recalled that before the vaccine was placed at the disposal of laboratories for testing, its eminent discoverers had satisfied themselves by every available means of its efficacy against artificial infection. They carried out also some small scale experiments on the protection conferred on bovines against natural infection. The measure of their confidence in the vaccine can be fully realised from the fact that they accepted the grave responsibility of recommending the inoculation of newborn children; in France more than 110,000 children, living in tuberculous surroundings, have to date been inoculated.

The extensive and prolonged experiments which they carried out are too well known to need reviewing here. It will suffice to mention that the investigations undertaken by medical and veterinary authorities in almost every country in Europe have confirmed the claims made in regard to the non-pathogenicity of the vaccine and its immunising properties for children. The results stated to have been achieved in France have been adversely criticised by some English medical writers, but more in regard to the extent of success claimed than as to the efficacy of the vaccine. In spite of all criticism, the indisputable fact remains that, on the published data, the vaccine would appear to have justified the principal claims made for it. It still remains for its value to be assessed for the protection of bovines against natural infection.

It is unnecessary to emphasise the magnitude and economic importance of the tuberculosis problem in this country, and as guardians of animal health it is our duty to explore every conceivable source of assistance against this widespread disease.

It would, therefore, be a grave mistake to prejudge adversely on insufficient data the most promising method which has yet been elaborated, more particularly as there is at present no alternative method which is likely to be of much assistance against the disease. The vaccine is unlikely to prove one hundred per cent. effective, but no experienced person could have entertained such unreasonable expectations, in view of the gross infection existing in the average dairy herd. It is to be hoped, however, that by its widespread employment the incidence of bovine tuberculosis will be gradually reduced and the disease, perhaps, finally eradicated. If the vaccine can achieve this result it must rank as one of the most valuable discoveries of all time.

The average amount of tuberculous infection in dairy herds throughout the country is usually stated to be about thirty-three per cent., but it would appear from the results of the preliminary tuberculin tests undertaken in connection with the field experiments to be now considerably higher than that figure. That bovine tuberculosis should, under existing conditions, be gradually increasing can hardly be a matter for much surprise.

Veterinary workers in various parts of the world are engaged in testing the vaccine under field conditions, but the very low mortality caused by tuberculosis among young animals and the chronic nature of infection, will make this a difficult and long drawn out investigation. Furthermore, as inoculated animals re-act to the tuberculin test for indefinite periods, the scope of field experimentation is limited and many suitable herds cannot be employed. The Ministry of Agriculture has recognised from the beginning the great possibilities of the vaccine in relation to the prosperity of the cattle industry, in addition to the necessity of reducing to a minimum a disease which is so intimately connected with infantile mortality.

Unfortunately, laboratory experiments which necessitate the keeping of bovines for long periods are very costly. Carefully planned small scale experiments on calves have, however, been in progress for some years at the Ministry's veterinary laboratory, and while useful information should be obtained from these, the number of animals under test is insufficient to permit of final judgment on this important problem. In order to reduce to a minimum the possible errors due to individual susceptibility or variations in the potency of strains of the tubercle bacillus, a large number of animals must be employed.

Extensive field experiments, in co-operation with veterinary practitioners, have also been initiated by the Ministry in many parts of the country, but the experience gained to date does not justify any optimism as to the value of the results which will be obtained. Owing to the many factors involved it is improbable that more than ten per cent. of inoculated calves will eventually be available for *post-mortem* examination. There does not appear to be any remedy for this unsatisfactory state of affairs. Although stock owners and veterinarians have given their whole-hearted co-operation, none of the various systems of dairy farming can be suitably adapted to the exacting conditions essential for a reliable test, without interfering to a considerable extent with routine practices.

The question arises as to whether the value of the vaccine can be equally well estimated by extensive field tests as by the more usual method of strictly controlled laboratory tests. In view of the experience gained to date, the answer is certainly in the negative.

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Field tests are necessary for ascertaining the value of any particular method of immunisation under the varying conditions which obtain in practice, but should be undertaken only when the value has been accurately estimated under laboratory conditions.

It is obvious that with the varying degrees of interest and thoroughness with which individuals carry out the conditions governing the use of the B.C.G. vaccine there will be no uniformity in the results obtained. Therefore, entire dependence on field tests will mean the accumulation of masses of discordant results, and will postpone indefinitely the urgently needed verdict as to the value of the vaccine.

Moreover, if laboratory tests are dispensed with there will be no fixed standard of value with which to compare the results of field tests. A similar situation exists to-day with the live vaccine against contagious bovine abortion. The value of this vaccine has never been properly assessed under laboratory conditions and now, after twenty years of experience in various parts of the world, there is a wide difference of opinion as to its exact value.

When the B.C.G. vaccine was introduced it was stated to be unnecessary to alter in any way the existing methods of rearing calves. The authors, influenced apparently by the inherent conservatism of the average farmer, took a risk in advocating this policy. It soon became evident, however, that calves were contracting infection in the interval which elapsed between inoculation and the establishment of immunity. Consequently, the system was modified in 1927 and recommendations made for the protection of calves from all sources of infection with tuberculosis for one month after inoculation. This simply meant admitting that the vaccine did not confer immediate protection. Some writers have adversely criticised the vaccine because of this limitation, but it is common to most methods of active immunisation. It was undoubtedly a set-back to the method; nevertheless, if the vaccine should prove to be reliable, the inconvenience arising from the necessary period of isolation will be a trifling price to pay for the eradication of bovine tuberculosis.

As all field tests were being carried out in strict accordance with the recommendations laid down by the authors, the modification instituted in 1927 destroyed the value of inoculations undertaken prior to that date.

Watson, in Canada, has carried out important laboratory tests of the vaccine, but unfortunately his work on bovines, like that in Europe, has been rendered almost valueless owing to the introduction of the initial period of isolation. He has also undertaken pathogenicity tests on guinea pigs, and as a result questions the claims of the authors as to innocuity of the vaccine. This part of his work is open to criticism, but is nevertheless an important contribution to the subject and his experiments merit immediate repetition in other laboratories.

Extensive field tests have recently been completed by another Canadian laboratory, but so short a time has elapsed since the institution of the period of isolation, that it would appear improbable that the test animals were protected prior to the establishment of immunity. If not, these tests also will be valueless. A report on this work, is, we understand, in the press.

Other investigators have framed experiments with the object of obtaining a speedy appraisement of the vaccine by employing it in infected herds on animals destined for the butcher at two to three years of age. Valuable information can undoubtedly be acquired from such experiments, but the critical tests must be carried out on cows subjected to the severe constitutional strain of frequent breeding and forced milk production throughout an average life, as these are important contributory factors to the prevalence of tuberculosis among dairy cattle. Furthermore, the taking in of repeated small doses of infection over a relatively short period may not give rise to marked lesions, whereas similar doses over long periods might cause generalised infection.

In view of the conditions existing in Europe, it is natural that considerable interest should be taken in the Canadian experiments, but there would appear to be some risk that they may be given an exaggerated value and the results unquestionably accepted. Whatever the results may prove to be—this is being written prior to their publication—and even if the experiments conformed to the recent modifications, they can only be regarded as a contribution to the subject, as the critical tests must be carried out on cows kept under routine farm conditions.

There is another important aspect of the problem which must not be ignored, that is, whether the susceptibility to tuberculosis of Canadian cattle is similar to that of European cattle and, if not, will results obtained with Canadian cattle hold good for European breeds ?

The very marked difference in the extent of infection in Canadian herds as compared to European herds may have an important bearing on the degree of susceptibility. It is a well known fact that certain native tribes in India and Africa living in isolated districts are almost free from tuberculosis and, consequently, have neither an inherited nor acquired resistance to the disease. If they migrate to the towns their high degree of susceptibility is speedily shown by the contraction of acute tuberculous infection, although the permanent town-dweller appears relatively resistant. Is it not possible that in a similar manner the lightly infected Canadian herds are highly susceptible to the disease ? It may be argued that many dairy herds in the Eastern cities are heavily infected, but even admitting this to be true, the degree of infection in a small number of herds cannot be accepted as any criterion of the average susceptibility of the cattle in the country.

If this hypothesis proves to be correct, is it not reasonable to assume that a vaccine which would be just sufficient to protect the more resistant European cattle might be inadequate for the protection of the highly susceptible Canadian cattle ?

The American and Canadian governments have, in view of the small amount of infection present in their herds, embarked on the courageous policy of eradicating the disease by a vast scheme of tuberculin testing, and recently published figures would appear to indicate that their object can be accomplished by this means. If they succeed in eliminating all reactors, they will then be faced with the problem of guarding the herds against re-infection without perpetuating the expensive policy of short-interval tuberculin testing. The general employment of a

vaccine which creates reactors is, obviously, diametrically opposed to the American and Canadian policy.

The Department of Agriculture, South Africa, is now seriously considering the adoption of the American policy of combating the disease by tuberculin testing, the average infection of South African herds being only about ten per cent.

While the value of tuberculin as a diagnostic agent, and its efficacy in eradicating the disease, has been definitely established, its wholesale employment for the elimination of reactors in this country is impracticable—at least without upsetting the milk supply—owing to the gross infection existing in our dairy herds.

Tuberculin testing combined with segregation of reactors from non-reactors (method of Bang) has, since its introduction thirty-six years ago, failed as a practical method of controlling the disease.

The value of any particular method should be judged not on the result of small scale experiments, carried out under special conditions, but in the light of its practical application under all the varying conditions which obtain in the field. A vaccine conferring a reasonable amount of protection is the only method which is likely to be of practical value in this country.

The employment of the B.C.G. vaccine against bovine tuberculosis is a matter of almost purely European interest; consequently, the critical tests should be made on European cattle. Many European governments are engaged in testing the vaccine under field conditions, but it is open to serious doubt if their efforts will produce within reasonable time a clear cut verdict on its value. If this should be the case a not inconsiderable sum of money will have been wasted. And if, on the other hand, the vaccine should eventually be found reliable, great financial loss will have resulted from its restricted employment throughout the unnecessarily protracted period of testing.

While there are several possible solutions to this difficulty, the most economical and perhaps the most acceptable to all concerned, would be the setting up of an international test.

As an international veterinary committee was recently convened by the Section of Hygiene of the League of Nations to consider the progress made in testing the vaccine for the protection of bovines, the initiation of an international test, under laboratory conditions, to supplant the present disjointed efforts should not be a matter of great difficulty.

It is obvious that, from whatever point of view the matter is considered, the problem of bovine tuberculosis is of sufficient economic importance to stock-owners, and particularly breeders of pedigree stock, to justify any reasonable expenditure on testing this most promising method of immunisation.

If the present system of testing the vaccine is continued, it should be with the clear understanding that a reliable verdict on its value is unlikely for at least another two decades.

In conclusion, it may be stated that the tests which have to date been completed are insufficient to permit of definite conclusions, but the results obtained are most encouraging, although the majority of the tests have been carried out under conditions unfavourable to the vaccine.

County Councils Association and the Administration of the Tuberculosis Order, 1925.

The following passages, concerning the administration of the Tuberculosis Order, 1925, occur in a report of its Agricultural Committee recently adopted by the County Councils Association :—

The Agricultural Advisory Sub-Committee considered the question of the administration of the Tuberculosis Order, 1925, and, in connection therewith, a summary of the information obtained from the county councils in accordance with the following resolution passed by the Agricultural Committee at their last meeting :—

"That the Secretary be instructed to obtain from the counties particulars of their experience of the working of the Tuberculosis Order, 1925, and of any alterations which they may consider to be desirable."

Two outstanding points appear to emerge from the county councils' observations. First, that the basis of compensation under the Order is such as to militate against adequate reporting of animals suffering or suspected to be suffering from tuberculosis, and also to provide excessive payments for worthless animals. Secondly, that, except in a very few counties, more than 50 per cent. of the total cost of the working of the Order falls upon the county rates, even after allowance is made for amounts received by way of salvage.

On the question of reporting, the Sub-Committee are informed that there are owners who prefer, despite the risk of detection and subsequent penalties, to send tuberculous animals to markets where they can get the full market value rather than to report them to the local authority, with the practical certainty of receiving a smaller sum by way of compensation. The only method of securing, on a monetary basis, a more strict observance of the provisions of the Order in this respect appears to be the payment of compensation equal to the full market value of the animal, but the Sub-Committee are not prepared to accept this proposal as an equitable solution of the problem. They are advised, however, that the sale of unhealthy animals is facilitated by lack of adequate veterinary inspection in certain markets, especially those under the control of the smaller authorities, whose circumstances are unlikely to justify the appointment of the necessary staff. It will be remembered, in this connection, that the elimination of the non-county boroughs as authorities for the purposes of the Diseases of Animals Acts was recommended in the evidence submitted by the Association to the Royal Commission on Local Government, and the Sub-Committee are disposed to believe that in this direction lies the true remedy for the existing state of affairs.

As regards compensation for worthless animals, it is clear, from the evidence available, that the provision for payment of a minimum of 45s. has resulted in many cases in owners receiving sums considerably in excess of the real value of their property, and the Sub-Committee are of the opinion that the principle of a mimum payment cannot be defended.

A number of counties have suggested that where, as the result of a preliminary examination, the owner of an animal admits the existence of advanced tuberculosis and agrees to accept the minimum compensation now payable,

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no *post-mortem* examination should be required. This proposal is attractive at first sight, as it would apparently effect a saving in administrative expenses, but it seems, on examination, to be open to serious objections, and the Sub-Committee are not prepared to recommend its adoption.

On the question of the incidence of the cost of the working of the Order, the Sub-Committee are bound to point out that, as the law now stands, it is the duty of local authorities to administer the provisions of the Diseases of Animals Acts and Orders made thereunder, but that there is no corresponding obligation upon the Exchequer to provide any definite percentage of the cost. The existing grant of 75 per cent. of the cost of compensation must therefore be regarded as an *ex gratia* payment. It is nevertheless the case that the prevention of animal diseases is the only extensive national service at present administered by the county councils for which an administrative grant is not provided, and the importance of this matter to the authorities seems likely to be intensified when full effect has been given to the present derating proposals.

In addition to the matters above referred to, the attention of the Sub-Committee has been drawn to the loss incurred by those owners whose animals are segregated as suspects but are subsequently found to be free from disease. At present there is not any provision for such loss to be taken into account, and it seems desirable that the Order should be amended in this respect.

The Sub-Committee therefore *recommend*—

(*a*) That the minimum compensation of 45s. payable in respect of animals proved to be suffering from tuberculosis should be abolished, and that Article 9 of the Order should be amended accordingly;

(*b*) That the local authorities in Great Britain for the purposes of the Diseases of Animals Act, 1894, should be reduced in number and should comprise the county and county borough councils only;

(*c*) That the authorities should appoint a sufficient number of whole-time veterinary officers to secure adequate inspection of all markets;

(*d*) That the Government should be asked to contribute 75 per cent. of the total cost (less sums received by way of salvage) incurred by local authorities for administration and compensation under the Order;

(*e*) That an owner whose animals are segregated as suspects but are eventually found to be free from disease, should be reimbursed such loss as he may prove, to the satisfaction of the local authority, to be the direct result of segregation.

Northern Ladies and the Victoria Veterinary Benevolent Fund.

Since the publication, on page 194 of our issue of last week, of our enthusiastic reference to the splendid efforts of ladies of the Northern Counties to gain monetary support for the Victoria Veterinary Benevolent Fund, we have been informed that the total amount of the proceeds of the Whist Drive organised by Mrs. Peele, Mrs. Rider, sen., and other ladies of the Northern Counties, is **£21 10s.** We join in congratulations to Mrs. Peele and Mrs. Rider on the great success of their efforts, and to Colonel Simpson on the benefit which accrues to the Benevolent Fund.

Bacteriological Tests for Graded Milk.*

Standards.

1. The following bacteriological standards for the various classes of graded milk are prescribed by the Milk (Special Designations) Order, 1923:—

Certified Milk and Grade A Milk Pasteurised.	The milk must not contain more than 30,000 organisms per c.c. and must not contain coliform bacillus in $\frac{1}{10}$ c.c.
Grade A (Tuberculin Tested) Milk and Grade A Milk.	The milk must not contain more than 200,000 organisms per c.c. and must not contain coliform bacillus in $\frac{1}{100}$ c.c.
Pasteurised Milk.	The milk must not contain more than 100,000 organisms per c.c.

Sampling.

2. Where the milk to be sampled is contained in bottles each sample should consist of one bottle (with seal unbroken) taken anywhere between the place of bottling and the consumer. Where the milk to be sampled is not contained in bottles samples should be taken and despatched in specially sterilised four-ounce or six-ounce bottles, each bottle being properly fastened and sealed.

3. On collection the bottles must be transferred forthwith to a carrying case and well packed in ice, and must be kept in this condition until plated at the laboratory. (This precaution may be dispensed with only if the bacteriologist considers it unnecessary on account of the proximity of the laboratory to the place in which the samples are collected.)

4. If the plates are not made within thirty hours of the time of milking, or in the case of pasteurised milk, of the time of pasteurisation, the additional time must be stated on the report, and in any case must not exceed twelve hours.

Laboratory Technique.

5. In order that the results obtained by different bacteriologists engaged in the examination of official samples of graded milk may be comparable the adoption of a strictly uniform technique is highly desirable. The technique described below has been found to be satisfactory, and should for this reason be universally adopted.

Medium for Plates.

6. To prepare the medium take—

1,000 c.c.	... ...	Tap water.
5 gms.	... ...	Peptone.
3 gms.	... ...	Lemco.

7. Dissolve by heat and filter hot through paper, add 15 gms. agar (best quality, clean); dissolve by heat, titrate with phenolphthalein. The reaction will usually fall between +5 and +10 on Eyre's scale, and the medium may then be used without any further adjustment of titre. If a batch does not fall within these limits, it should be brought within them by adding the minimum amount of acid or alkali.

8. Cool to 45° C., then bring to boiling point and filter through paper or absorbent cotton until clear. Eggs must not be used for clearing.

9. Distribute in flasks and sterilise for thirty minutes at 15lb. pressure, or for twenty minutes on three successive days in the Koch steriliser.

Dilutions.

10. Dilutions of (*a*) $\frac{1}{10}$, (*b*) $\frac{1}{100}$ and (*c*) $\frac{1}{1000}$ should be made in bottles containing accurately measured quantities of sterile water and fitted with glass stoppers; or by some other means which makes shaking possible. The dilution should be:—

* *Ministry of Health.* Memo. 139/Foods. To be purchased directly from H.M. Stationery Office at the following addresses: Adastral House, Kingsway, London, W.C.2; 120 George Street, Edinburgh; York Street, Manchester; 1 St. Andrew's Crescent, Cardiff; 15 Donegall Square West, Belfast; or through any Bookseller. 1929. Price 1d. net.

(*a*) 90 c.c. water plus 10 c.c. milk ;
(*b*) 90 c.c. water plus 10 c.c. of the (*a*) dilution ;
(*c*) 90 c.c. water plus 10 c.c. of the (*b*) dilution.

11. At least two pipettes are required for each sample, one for dilution (*a*), another for dilutions (*b*) and (*c*) ; the latter pipette should be washed out ten times in each dilution as it is made. Alternatively, a separate pipette may be used for each dilution. Straight-sided pipettes (not bulbed) should be used.

12. In making dilutions the original sample and each dilution bottle must be shaken twenty-five times, each shake being an up-and-down motion, with an excursion of about one foot.

In making the plate, put the required quantity of diluted milk into a sterile tube (5in. by 1in.) and add about 15 c.c. of melted agar cooled to 45° C. ; then pour the mixture into a Petri dish (3½in. internal diameter). The depth of the agar in each Petri dish should be uniform.

13. Not more than half an hour should elapse between the dilution of the milk and the pouring of the plate.

14. After the agar has thoroughly hardened, incubate for forty-eight hours at 37° C.

Counting of Colonies.

15. If among the different dilutions there are plates containing from 30 to 300 colonies, these should all be counted, and the number, multiplied by the dilution, reported as the final count. If there are no plates within these limits, that which comes nearest to 300 should be counted. No plate that contains less than 20 colonies should be counted, unless there are no plates with a larger number. If the number of colonies on a plate is over 300, a part of the plate may be counted and the whole plate averaged.

" *Coli* " *Tests.*

16. For Certified milk and Grade A. milk Pasteurised, three tubes, each containing 10 c.c. of bile-salt lactose peptone water,† and a Durham's fermentation tube, should be inoculated each with $\frac{1}{10}$ c.c. of the sample under examination, and incubated at 37° C. For Grade A. (Tuberculin Tested) and Grade A. milk, three tubes should each be inoculated with $\frac{1}{100}$ c.c. of the milk.

17. An uninoculated control tube should also be incubated.

18. The tubes should be examined for acid and gas production at the end of forty-eight hours. The milk is regarded as satisfactory in respect of this test if two out of the three tubes are found to be free from acid plus gas after forty-eight hours' incubation.

REPORTS.

19. The results of both bacteriological examinations should be recorded on a form similar to that contained in the Appendix to this Memorandum, and the report should be sent to the Ministry or the Licensing Authority immediately on the completion of the examination.

Ministry of Health,
Whitehall, S.W.1,
February, 1929.

Appendix.

MILK (SPECIAL DESIGNATIONS) ORDER, 1923.

Report of Bacteriological Examination of.....‡*Milk*.

Name and Address of Producer :
Date and Time of Production :
Name and Address of Dealer :
Date and Time of arrival at Dealer's Premises :
Place where sample taken :
Date and Time sample taken :
Quantity of sample.
Date and Time of {delivery at / dispatch to} Laboratory :
Signature of Inspector obtaining sample :

Bacteriologist's Report.

No. of sample :
Age of sample when received.....hours.
Temperature on arrival :
Number of Bacteria per 1 c.c. :
Presence or absence of Coliform Bacillus in..... §c.c. (in each of three tubes) after 48 hours' incubation :
Tube 1.
Tube 2.
Tube 3.
Remarks.
Conclusion.—I am of opinion that the sample {complied / did not comply} with the prescribed conditions.

Signature
Name and address of Laboratory
Date.

† This should be prepared as follows :—Five grammes each of sodium taurocholate and lactose, 20 grammes of peptone, and 1 litre of water are heated together until the solids are dissolved. The mixture is filtered and sufficient strong neutral litmus solution is added to give a distinct colour. The medium is then distributed into fermentation tubes, and sterilised by steaming for 20 minutes on three consecutive days.

‡ Insert designation, *i.e.*, " Certified," &c.

§ Insert $\frac{1}{10}$ or $\frac{1}{100}$ according to grade of milk (*see* instructions).

World Poultry Congress in London.

WIDE FOREIGN SUPPORT.

The Ministry of Agriculture announces that, in response to the official invitation sent out to all overseas countries through the Foreign Office to take part in the World Poultry Congress of 1930 in London, many favourable replied have been received. Among the British Dominions the Irish Free State and South Africa have already promised to participate, and the Canadian Government, which so successfully organised the Congress of 1927, has the questions of finance and organisation under consideration. Other countries which have accepted the official invitation include Holland, Norway, Portugal, Hungary, Spain, Turkey, Peru, Nicaragua, Colombia, Guatemala, and Lithuania. At a meeting held in Paris last month for the purpose of arranging preliminary details, representatives were present from Spain, Germany, France, Holland, Denmark, and England, and the representation of these countries is assured.

Inquiries from oversea countries for space at the Crystal Palace indicate that many national displays will be made. The Empire Marketing Board, the Agricultural Departments of England, Scotland, and Northern Ireland, together with a number of agricultural colleges, research institutions, and poultry associations in this country, propose to take advantage of the opportunity to display the progress made in the science and practice of poultry-keeping.

Arrangements for American participation in the Congress have already advanced to a stage which indicates the interest of the United States Government. Responsibility for organising the section has been delegated to the American National Poultry Council, which has submitted a case for official participation to the Government ; and it is announced that the Department of State and the Department of Agriculture have approved the project. The matter has been referred to the Federal Budget Bureau and an appropriation of $40,000 (£8,000) has been approved. The American National Poultry Council is now arranging details of transportation to and from the Congress, and a programme has been drawn up for a comprehensive tour which will allow one week at the Congress in London, two weeks for touring Great Britain in motor coaches, and two weeks for a tour of poultry-keeping centres in other European countries.

The King and Queen and the Prince of Wales are patrons of the Congress, which is being organised by the Government through the Ministry of Agriculture, in co-operation with the Department of Agriculture for Scotland and the Ministry of Agriculture for Northern Ireland.

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Parasites in Association with Malignant Growths.*

By J. Drabble, B.V.Sc., Pathologist, State Abattoir, Homebush Bay, New South Wales, Australia.

On several occasions during the past year or so the writer has been asked by other scientific workers whether he has ever found cancer of the liver associated with fluke infestation of that organ.

The reply has always been in the negative. In spite of the very serious changes so commonly met with in livers, especially in sheeps' livers, as a result of fluke infestation, nothing even remotely suggestive of fluke infestation has so far been found in any liver affected with any kind of neoplasm at the New South Wales State Abattoir.

The inquiries may have been prompted by the fact that certain cases of cancer in the livers of fluke infested cattle were attributed by Haaland(1) to the irritation caused by these parasites.

Trematodes have also been regarded as ætiological factors of hepatic cancer in man (Katsurada(2), Askanazy(3)).

The existence of a neoplasm in the liver concurrently with fluke infestation does not necessarily indicate an ætiological relationship between the parasites and the tumour; and, on the other hand, the absence of tumour formation in the large numbers of fluke infested livers that are commonly met with at a large public abattoir would not justify the conclusion that flukes are incapable of indirectly exciting neoplastic growth.

Trematodes, however, are by no means the only parasites that have been found in association with neoplasms. In man, cancer of the bladder is often a sequel to bilharzia infestation, and in some countries carcinoma is rather frequently associated with trichiniasis (Babes(4)). In rats, Bridré(5), found sarcomata growing in association with cysticerci; and in certain cases of sarcomata and adeno-carcinomata of rats Borrel(6) found a nematode worm in the centre of the tumours.

When making an examination of a gastric carcinoma in a rat, Fibiger(7) discovered portions of a nematode worm in the growth. He recognised the parasite as one which is sometimes found in cockroaches, and named it *Spiroptera neoplastica*. In order to ascertain the relationship between the nematode and the growth, Fibiger fed a series of rats with the bodies of infested cockroaches. This resulted in chronic gastritis; and of 62 rats which withstood the experimental feeding for more than 60 days, 12 developed carcinoma of the stomach. Two of the rats developed metastatic growths in the lungs. The primary growths in the stomach contained numerous worms and ova; but neither parasites nor ova could be found in the metastatic growths.

This experimental production of cancer by Fibiger has attracted widespread interest, and is accepted by a large number of workers as demonstrating beyond all reasonable doubt that there was a definite ætiological relationship between the parasite used in the experiments and the malignant growths produced.

Particulars of two cases of sarcoma associated with parasitic infestation in animals killed at the New South Wales State Abattoir are given hereunder:—

I. Sarcoma Associated with Echinococcus Infestation.

S.A. 647/8. Ox; beef shorthorn; about four years; good condition. Liver enlarged, and invaded by a fairly soft growth which extended through the thickness of the organ from the hilus to the anterior surface. This distance was 20 centimetres (8 inches). In the direction of the length of the organ the growth measured 22.5 centimetres (9 inches); and in a transverse direction the growth also measured 22.5 centimetres.

The liver contained a number of echinococcus cysts, varying in size from that of a pea to that of a hen's egg. Some of the cysts were in the active stage, while others were more or less degenerated. In two or three places the remains of degenerated hydatid cysts were found in the growth, the cysts apparently having become surrounded and almost entirely obliterated by the tumour. Some of the cysts in the liver were adjacent to and others actually contiguous with the edge of the growth.

No lesions could be detected in the hepatic lymph glands, or in any other organ or part of the body.

Microscopic examination of suitably stained paraffin sections showed the tumour to be a round-celled sarcoma. Mitotic figures were numerous, and at the edges of the growth the tumour cells were rapidly infiltrating the liver tissue. The malignancy was obviously high.

II. Sarcoma Associated with Sarcocysts.

S.A. 597/8. Sheep (wether). An irregular, nodular growth, approximately 3.125 centimetres (1¼ inches) in depth, was found attached to the anterior part of the floor of the thoracic cavity. The neoplasm extended backwards to the junction of the second and third sternebræ, and had involved the first sternal lymph gland, apparently by contiguity.

An extension of the growth, in the form of a thin nodular layer, had crept upwards and backwards on the costal pleura of the left side for a distance of about 7.5 centimetres (3 inches); and a similar but somewhat shorter extension had also occurred on the right side. The left costal pleura also showed a number of discrete miliary nodules scattered over its surface.

On removal of the left shoulder it was found that the growth over the anterior part of the sternum was continuous with a somewhat flattened growth, which, anteriorly, involved the posterior division of the scalenus muscle, and which extended in a backward direction along the outer aspect of the wall of the chest as far as the fourth intercostal space. This, which was apparently the primary growth, had a more or less circular outline, and a maximum thickness of about 2.5 centimetres (1 inch).

Microscopic examination showed the neoplasms to be a fibrosarcoma. In sections of the muscles which were invaded and being destroyed by the tumour cells a number of sarcocysts (*Sarcocystis tenella*) was observed. The malignancy of the growth was moderately high.

In the two cases just described it is, of course, impossible to show whether the parasites were ætiological factors of the neoplasms or not.

Supporters of the theory that malignant growths are caused by an ultra-visible virus would probably argue that, in cases where parasites have apparently excited the formation of malignant growths by mechanical or chemical irritation, the growths were really caused by an ultra-visible organism which may have been carried into the tissues by the parasites, or which may have reached the tissues either before or after infestation by the parasites took place. As a result of the damage or irritation caused by parasites, either mechanically or by the chemical

* Reproduced from the December, 1928 issue of *The Australian Veterinary Journal*, Vol. 4, No. 4.

action of their secretions or excretions, the micro-organism was enabled to excite some of the cells in the injured areas into unrestrained growth and multiplication.

This, of course, is not impossible. It is well known that pathogenic organisms may sometimes be found in organs and tissues which are apparently quite normal.

A mass of evidence, however, has been accumulated which shows that the majority of malignant growths in man are preceded by and are apparently in a large measure the result of chronic irritation or inflammation, which may be mechanical, chemical, thermal, or electrical in nature.

A few well-known examples are: X-ray cancer; multiple epithelioma of the skin in workers in aniline dyes and paraffin; smoker's cancer of the lip; cancer of the skin in arsenic eaters; scrotal cancer of chimney sweeps; kangri and betel nut cancer; ginners' cancer; mammary cancer following mastitis; epithelioma following lupus; cancer as a sequel to the leukoplakia of syphilis.

The important part played by chemical stimulation or irritation in relation to cell growth is becoming increasingly evident. This is due chiefly to the study of the influence of the various hormones on the growth and development of the animal body, and also to the knowledge gleaned from tissue culture.

The latter subject is yielding important results in connection with the study of cancer.

Under strictly aseptic conditions, a piece of living tissue taken from the body of an animal may be kept alive, and will continue to grow for an indefinite period in serum from the same animal or from an animal of the same species. In order to keep the cells supplied with sufficient food material and to prevent them from being poisoned by their own excretory products, it is, of course, necessary to change the serum fairly frequently. Also, in order to prevent the piece of tissue from becoming unduly large relative to the amount of serum in which it is growing, a portion has to be cut away from time to time, and discarded.

The chief point of interest, however, is that the serum used for the culture must be from a young and growing animal. If the serum from a fully-grown animal is used, no growth takes place. It has also been found that the rate of growth of the piece of tissue being cultured is strictly proportional to the age of the animal supplying the serum; the older the animal, the slower the rate of growth of the tissue.

These facts seem to demonstrate rather clearly (i) that in the body fluids of a growing animal there is some chemical substance which stimulates cells to grow and multiply; (ii) that this substance gradually decreases in amount as the animal grows to maturity; and (iii) that the substance is absent from the bodies of fully-grown animals.

The nature of this chemical substance is not yet known; but it is highly probable that before very long it will be isolated and synthesized.

It has also been found that if the juice be extracted from the tissues of a fully-grown animal, and allowed partially to decompose, it will then stimulate the growth of cells in tissue culture. The chemical substance formed by this early decomposition differs from that in the body fluids of a growing animal in that, *inter alia*, it is more resistant to heat. It seems reasonably probable that this substance is responsible for the healing of wounds. This probability is strengthened by reference to a similar well-known phenomenon in plants. If a small piece be cut out of a plant, and the surface of the wound immediately washed, healing does not take place. If, however, the piece that has been excised is then crushed to a pulp, and spread on the surface of the wound, cell growth and multiplication are stimulated into action, and healing occurs.

Cells in tissue culture may be stimulated into active growth and multiplication by extracts made from cancer tissues. It is also interesting to note that if a tiny portion of the kidney of a baby rat is kept in the serum of a normal adult rat no cell multiplication takes place; but if the same piece of tissue be placed in the serum obtained from an adult rat which is suffering from cancer, the kidney cells are stimulated into active growth and multiplication. Cancer, therefore, produces some growth-stimulating secretion which is probably of considerable importance in relation to cancer growth.

All these facts illustrate and emphasize the great part played by chemical stimulation in relation to cell growth. It would almost seem that cells are normally quiescent as regards growth and multiplication except while being subjected to some chemical stimulation. Even the act of fertilisation of the ovum may be regarded as a highly complex chemical combination or series of combinations, as a result of which the ovum is stimulated into active growth and multiplication.

In regard to the ætiology of malignant growths, the weight of accumulated evidence, plus one's personal observations, make it difficult to avoid the conclusion that anything which is capable of causing chronic irritation or inflammation is a potential factor in the ætiology of cancer. The fact that many cases of cancer are known to arise from embryonal rests does not in any way lessen the force of this conclusion.

Hence, parasitic infestation cannot logically be rejected as a potential factor in the causation of malignant growths; and therefore the association of parasites with neoplasms in the same organs and tissues must always be regarded with suspicion.

References.

(1) Haaland: *Imp. Cancer Res. Fund*, 1911, 4, 1.
(2) Katsurada: *Ziegler's Beitrage z. path. Anat.*, 1900, 28, 479.
(3) Askanazy: *Deutsche med. Wochenschrift*, 1904.
(4) Babes: *Centralblatt f. Bakteriologie*, 1909, 42.
(5) Bridré: *Conseil. Rev. d. Méd.*, 1910, 30, *Suppl.* 318.
(6) Borrel: *Annal. Pasteur*, 1909, 23, 97.
(7) Fibiger: *Zeitschrift f. Krebsforschung*, 1913, 13, 217; 1914, 14, 295.

Cancer is associated with, and possibly controlled to a large extent by, the relative alkalinity of the blood, according into to McDonald of the Cancer Research of the University of Pennsylvania. Supporting this theory it is claimed that cancer is extremely rare in individuals affected with acidosis. According to this theory, cancer can be prevented and possibly destroyed in the early stages by overcoming the alkalinity. The administration of drugs that would cause an acidity would be only temporary, permanent protection being obtained only by chemically attacking the sources of alkali in the body. Experimental data will no doubt soon be forthcoming on this important problem.—*Science.*

XUM

Veterinary Progress.

(*Reprinted from the "Scottish Farmer"*).

Sir John Moore, K.C.M.G., C.B., F.R.C.V.S., whose laborious and exhaustive paper on the horse as an economic factor has laid all equine lovers under a deep sense of obligation, on 24th October last delivered a paper* to the Royal Society of Medicine—Veterinary Section—which contains much interesting material. As president of the section he reviewed the Old and the New of Veterinary Science and Practice. Sir John began his professional studies in 1882, so that his own observations cover a period of 46 years. In his review he, however, went even further back, and took as the basis of his comparisons the views to be found in the Principles and Practice of Veterinary Science by the late Principal William Williams, of the New Veterinary College, Edinburgh. We believe that book is, as a guide to the general practitioner, not yet superseded, but it is rather on its theoretical side that Sir John Moore passes comment. "Williams was a sound teacher, a great observer, a deep thinker, and an acknowledged authority considerably in advance of his time." Nevertheless, as late as 1882 he defined a contagious disease as "a morbid condition of the animal body, induced generally by the operation of a specific virus, termed a poison, derived from an animal similarly diseased, and communicated by inoculation, contact, or through the medium of the air."

When one considers how little was known half a century ago about the germ theory of the cause of disease, there is a deal of shrewdness in that definition of disease. But his distinguished reviewer goes on to quote Williams as saying that "sometimes contagious diseases originate spontaneously." In holding this opinion Williams was not singular, and how completely he and his contemporaries were mistaken may be inferred from the fact that he instances glanders and farcy as two diseases having spontaneous origin. Sir John Moore rightly claims the all but complete extinction of these diseases, and also of rabies, as proof that there is no spontaneous origin of disease and of the very notable contribution which veterinary science has made to the physical and economical well-being of the human race.

Regarding anthrax, we are not sure from what Sir John Moore says that veterinary science knows so very much more about a remedy for it than was known by Williams and his contemporaries. A wide field opens here for research work, and while Williams may, as his critic avers, have been confused in his diagnosis of anthrax, those who deal with the fell disease to-day do not seem to be much nearer to finding an antidote. Tuberculosis is a disease in regard to which the recorded opinions of the older generation almost sound amusing. It was Koch's discovery of the *Bacillus tuberculosis* in 1882 which paved the way for all subsequent dealing with this disease. There is a confident assurance in Sir John Moore's words that were veterinary science as it now stands properly applied, and the veterinary profession given a free hand, bovine and avian tuberculosis could be eliminated. Were this achieved it will readily be admitted that a mitigation of the scourge in human beings could then be effected. It did not come within the scope of Sir John Moore's review to indicate what he meant by a "free hand" but most of those interested in farm stock would be glad to concede the free hand if results could be guaranteed. Bovine pleuropneumonia and milk fever are two of the stockowner's handicaps which the veterinary profession have successfully removed. On the vanishing of these bovine diseases, the equine diseases of glanders and farcy, and rabies, the veterinary profession are to be sincerely congratulated.

When Sir John Moore comes to deal with hereditary disease in horses he is not so sure that the present generation is so very much in advance of the ancient men. In fact he says that the old practitioner was incomparable in detecting lameness. It was said of William Dick "that he could tell at a glance even when a horse had moved but a few yards the seat and the cause from which he was lame." If so, William Dick must have had a wider field of opportunity for horse examination than is open to the modern practitioner, and indeed it must be remembered that the veterinary surgeon of 50 to 100 years ago was to a very large extent a horse doctor and nothing else. His interests were not divided as are those of the practitioner of to-day. In the realm of surgery the present day veterinarian is far ahead of his predecessor. Here he has achieved his greatest triumphs, and some of the work done in this department is beyond praise. Amidst it all let this be said to the credit of the veterinary profession, that it has done more at its own cost for the well-being of the race and community than any other profession. No profession, capable of conferring lasting physical and economic benefit on the human race, has had less patronage from public funds.

* Reproduced in the *Veterinary Record*, 15th December, 1928.

An Appeal on behalf of the Poor Out-patients' Department of the Royal Veterinary College, London.

Professor FREDERICK HOBDAY, C.M.G., F.R.C.V.S., Principal of the Royal Veterinary College, London, in the course of a speech which was broadcast from London, on March 3rd, 1929, said :—

"I am appealing to-night to all animal lovers for help on behalf of one of the Departments of the Royal Veterinary College in London, a Department devoted entirely to the alleviation of suffering amongst the animals of the poor.

The Royal Veterinary College was the pioneer of the treatment by qualified Veterinary Surgeons of the sick animals of the poor. It has been doing this beneficent work for a very great number of years, during which time thousands of animals have been restored to their respective owners, and many a coster or small contractor has had cause to bless the Institution which has restored to health and given back to him the breadwinner of the family, in the shape of his donkey or his pony. Situated in College Street, Camden Town, this Out-patients' Department draws its patients from a wide area, and animals are brought from distances as far apart as Woolwich, Shoreditch, Notting Dale and Acton.

Although horses have, comparatively speaking, almost disappeared from the streets, there are still a number left, and for certain classes of work they will always have a place for the poor man especially, as the cost of horse haulage works out considerably less than that of motor power.

But it is not only with the ponies and donkeys that this Department deals, as there is also a clinic for the smaller patients, and these include such varieties as dogs, cats, monkeys, goats, rabbits, white rats, mice, birds, and even tortoises.

The motley assembly which wends its way in when the poor folk's entrance door is opened would give great opportunities for the brush and canvas of the artist, for it is a study not only of the animal itself, but of the animal owner—and the poor owner lavishes just as much affection upon his dog or his cat as does the owner who lives and keeps his, or her, dog in luxury. Truly can it be said that a dog or a cat is an integral part of an English household, and the effect of the presence of a pet dog on the characters of the children as they grow up is so marked that there can be no argument about it. The dog or cat of the poor man, when sick and unable to take care of itself, has just as much moral right to proper veterinary treatment as the animal of the owner who is rich, and the only person qualified to diagnose animal ailments is the veterinary surgeon.

The Royal Veterinary College Buildings were set up in 1791, and, as some of the buildings which are here to-day are the same which were put up then, it does not require much imagination to surmise that they are antiquated in design and dilapidated in aspect. In consequence of this antiquity of the buildings and the necessity for modern class rooms, laboratories, and equipment, the College has suffered very badly, and the Out-patients' Department for the sick animals of the poor has suffered with the rest. Money has to be found daily to purchase the necessary

drugs and dressings, bandages, wound lotions, splints for broken legs, instruments and other essentials, which are necessary for the carrying on of a large clinic. We need stables for horses and donkeys, and kennels for dogs, cats, and small animals, too ill to be treated at home.

To put this Out-patients' Department on a proper footing we need the minimum sum of £20,000, *i.e.*, 400,000 shillings—and of this, provided we can find the first 200,000 shillings, the Government has promised to find the other half. Knowing that there are at least 200,000 animal lovers in Great Britain I am going to ask each to contribute 1s. to the good cause, and if there are some who can, and will, afford a postal order for 2s. 6d. or 5s., the address to which it should be sent is:—The Secretary, The Royal Veterinary College, London, N.W.1.

The Eczemas and the Use of Ultra-Violet Light.

Dr. Edward J. Deck, Medical Superintendent of the London Light Clinic, writing in the February, 1929, number of *The Actinic Practitioner and Electrotherapist*, on "Elements of Practical Actinotherapy: No. 5—Some of the Common Forms of Skin Disease," says:—

"From the U.V. light point of view it is only necessary to place the eczemas in two groups, *viz.*:

(1) The acute condition.

(2) The chronic or dry scaly eczemas.

"It is quite safe to assert that nothing hitherto has been quite so helpful in the clearing up of the many varieties of skin manifestations classified under the heading 'Eczema' as U.V.L. That eczema may be produced by a variety of causes goes without saying, but what is so commonly overlooked is the fact that every type of eczema, be it acute or chronic, is associated with a peculiarly hypersensitive skin and in this fact lies the whole secret of the successful administration of U.V.L. for eczemas. In an already highly irritated skin, it becomes at once apparent that anything in the nature of an erythema dose must at all cost be avoided. It is, therefore, the primary duty of the actinotherapist to warn the patient that only by the exercise of great patience and the administration, to commence with, of the smallest doses can real progress be made. The writer has often seen cases which had undoubtedly been intensely aggravated by over-dosage.

"In the wet or weeping variety of eczema accompanied by all its attendant discomforts it is only natural that patients desire a speedy relief; do not be tempted to increase the dose of U.V.L. on this account or disappointment is the sure sequel.

"From whatever cause the eczema started, an acute eczema soon becomes aggravated by secondary sepsis and therefore the lamp to be selected is undoubtedly the M.V.L. Its rich output of U.V.L., its freedom from Red Radiation, and Blue Ray preponderance in the visible portion of its spectrum, without exception, make it the ideal lamp to use. In children and adults the writer commences with half to one minute over the whole areas affected, every other day and as soon as possible reducing to twice a week with gradually increasing doses up to a final dose of possibly ten minutes. After irradiation a simple ointment, *e.g.*, zinc and boric, should be applied in small patches unless exudation be profuse, then a starch dressing or thin layer of Unna's Paste is indicated. The patient should be seen every day and the dressing changed if necessary.

"Before the next irradiation all traces of ointment must be removed, also scales and crusts, as U.V.L. will not penetrate grease, scales or crusts and organisms are left in hiding to carry on their irritating influences.

"The more chronic forms of eczema are not so difficult to handle but the choice of lamp is important and varies with the class of case with which we have to deal.

"Most chronic eczemas appear to be associated with faulty metabolism and in the case of localised eczema such as the varicose variety, we have at once evidence of faulty nutrition. Faulty metabolism or faulty nutrition must necessarily be dealt with from their respective angles, and the treatment therefore resolves itself into local and general.

"For general treatment either M.V.L. or Tungsten or cored carbons can be used on the principles laid down in previous articles. For local treatment the M.V.L. or Tungsten arc are best, the writer's preference being for the Tungsten arc, owing to its rich infra-red output, which without question enormously stimulates nutrition.

"Local treatments should as before, begin on small doses, *viz.*, one to two minutes, gradually increasing to a maximum of eight to ten minutes. Irradiation twice a week is sufficient and dressings applied as indicated for acute eczemas. Sphagnol ointment often allays irritation and is a good application in chronic cases.

"Simple dermatitis is easily treated on the lines laid down for acute eczema and needs no further comment."

From The Veterinarian, March, 1828.

Herewith I transmit you a few cases of Gastritis, occasioned by the Horses eating Haws from the Thorns in the Hedgerows: if you think them worthy of a place in your valuable Journal, I shall feel obliged.

During the autumn of the year 1826 I was called professionally to six cases of Gastritis, all showing symptoms precisely the same. The pulse thready and scarcely perceptible; extremities cold; skin covered with a dewy perspiration; respiration remarkably quick; at intervals the stomach violently contracting, and when that took place, large quantities of the fluid part of its contents ejected through the nostrils, having a peculiar acid odour: medicine given in a fluid state was also expelled in the same way. Bleeding seemed to give relief, but it proved transitory; medicine was of little avail, and generally, within the space of from six to eight hours after I had been called in, the animal died.

On examining the viscera of the abdomen, I discovered some patches of inflammation upon the duodenum; but the stomach and omentum were so highly inflamed that they had quite a purple appearance; when the stomach was laid open the cause of the disease was very evident. In each case this viscus contained a very hard substance consisting of Haws and small pieces of the Thorn, about the size of a goose's egg, having a rough uneven surface. When the stomach was completely emptied of its contents, the villous lining presented marks of the most intense inflammation; but all around the pyloric orifice the coat was lacerated in various directions; no doubt in consequence of the contraction of the stomach, having a natural tendency to direct the substance to that part, in which by its rough surface it inflicted wounds.

It is very singular that the autumns of 1825 and 1827 did not produce similar cases, at least within my own observation; and the only way I can account for it is, that there was a greater scarcity of grass in 1826 than in either of the other two seasons. The horses that had the disease were young, from two to four years of age: the scarcity of grass in all probability induced them to feed on the haws and pieces of thorns.

Drunkenness among Cattle.

"Drunkenness Among Cattle" is the subject of a contribution presented before the academy of veterinary medicine of France. It appears that cattle fed on fermenting fruit or which have access to such products become alcoholically intoxicated. This is particularly observed in Normandy—home of the apple blossom—where cows often have access to piles of ripe apples at apple picking time in the fall of the year. The alcoholic fermentation, already started before the apples are eaten, is completed in the warm confines of the rumen and other compartments of the bovine stomach whence the alcohol is absorbed in sufficient quantity to cause the usual phenomena of an alcoholic "drunk." Analogous phenomena have been observed in cattle from eating sugar beets.

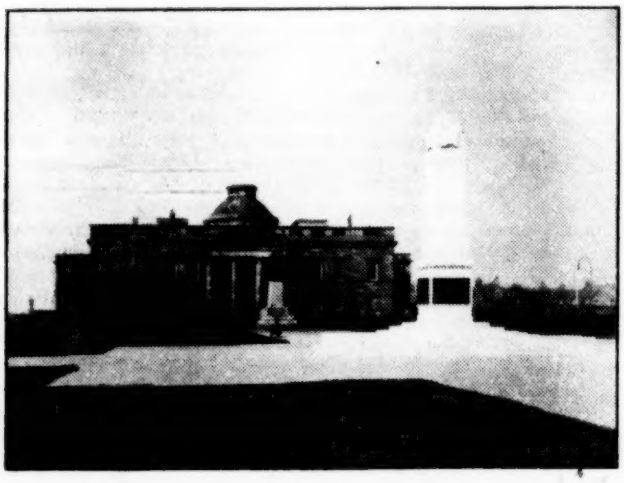
The Veterinary Record.

16th March, 1929.

AYR.

The venue of this year's Congress is a small town compared with some which have been visited by the Association in recent years, but the success of the Congress should not suffer on that account. The ability of a town of less than 40,000 inhabitants suitably to house the Congress might be doubted, but Ayr, being a popular seaside resort, has ample accommodation to offer, though it must be admitted that first-class hotel accommodation is somewhat limited.

The Provisional Committee has been very fortunate in the accommodation secured for the sessions, operations, and social functions. The County Council has granted the use of the County Halls for the sessions of the Congress and the Trade Exhibition, while this year the Secretary's office will be in the County Buildings instead of in a hotel as has been the custom; for the banquet the Town Council has granted the use of the Town Hall.



County Buildings, Ayr: The Congress Meeting Place.

A whole day is to be devoted to operations and demonstrations this year, and for these Messrs. James Craig, Ltd., live stock auctioneers, have granted the use of their sheep sale ring for operations on the larger animals, and their horse repository for minor operations and demonstrations. For the President's reception and other social functions, Western House has been reserved, the rooms there being such as should please the most fastidious of visitors.

While the success of the business side of the Congress appears assured from the interesting programme which has been arranged, and which we published last week, the town itself and the surrounding country must be of interest to the average member if the Congress is to be completely successful, and here Ayrshire and its county town will be found to compare most favourably with other venues of recent years. For the man whose interest lies in horses and cattle, opportunity will be provided for the inspection of some of the famous sires of the Clydesdale breed, and also of herds of Ayshire cattle, which breed, in recent years at the London Dairy Show, has earned for itself the title of the Premier Dairy Breed of Britain. For the golfer whose holiday is incomplete without his game, there are no fewer than seven eighteen-hole courses within three miles of the town, including the famous championship course at Prestwick, and arrangements are being made for members to play over some, at least, of these courses. Through its association with Burns, Ayr is the Mecca of all Burns lovers, for though he died and is buried in Dumfries, it was here at Alloway that he was born, and in Ayrshire most of his life was spent, enshrining in his songs much of its finest scenery from "Bonnie Doon" to "Sweet Afton."

There is much of historical interest in Ayr and its county; for centuries the history of Ayrshire might be said to be the history of Scotland. Here Wallace, who first dealt a definite blow for Scottish liberty, spent much of his time, and the scenes of many of his exploits, which made him the national hero he was, were laid in and around Ayr. Robert the Bruce, who completed the work of Wallace, spent his youth at his mother's castle of Turnberry, in Carrick, and in the final struggle, which culminated at Bannockburn, the first blow was struck at Turnberry, where he landed from Arran with a mere handful of followers. It was in the Church of St. John, in Ayr, that Bruce held his first parliament after the victory of Bannockburn, to settle the succession to the Scottish Crown. The tower of this ancient church still stands, and is probably the oldest building in the town. The line of Stuart kings also had its origin in Ayrshire through Bruce's only daughter marrying James Stewart, the ruins of whose castle at Dundonald can still be seen. It was their son, Robert II., who was the first of the Stuart kings. The title of "Earl of Carrick" was held by Bruce, and by a charter dated 1404, Robert III. conferred this title on his eldest son, and it is from this ancient charter that the Prince of Wales to-day bears the title of "Earl of Carrick."

As to the town itself, little is known of its earliest history, but it was in the early days of the thirteenth century that William the Lion granted it its charter as a royal burgh. Unfortunately, little now remains of these ancient days, and to-day the town has comparatively few buildings of architectural or historical interest. The Auld Brig is, however, an exception, and but for its association with Burns through his poem, "The Two Brigs," this, too, would most probably have been allowed to crumble and decay. Some years ago, however, Burns enthusiasts all over the country

raised a sufficient sum to enable a thorough overhaul to be carried out, and this relic of olden days is now secure for many years to come.

Few counties can offer the nature lover such a wide variety of beautiful scenery; the coast line is never uninteresting, consisting for the most part in long stretches of sandy bays, and in the south, below Girvan, of miles of rugged cliff. The beautifully-wooded valleys of the Ayr, Doon, Girvan, and Stinchar form a quartette difficult to surpass, while on the south-east border of the shire lie the Southern Highlands, which no doubt lack the rugged grandeur of the Grampians, but certainly add a beauty of their own to many a landscape.

It is hoped to arrange a number of outings during Congress week, which will give opportunities to members of seeing at least some of the natural beauties of the Land o' Burns, of which all sons of the shire are so justly proud, and when this part of the programme is definitely arranged the places to be visited will form the subject of some further notes on Ayrshire and its county town.

NATIONAL GREYHOUND RACING ASSOCIATION DINNER.

A very large gathering of canine enthusiasts assembled at the Savoy Hotel on February 28th, on the occasion of the National Greyhound Racing Association Dinner, held to celebrate the opening of the greyhound racing season for 1929. The Chairman was Lord Askwith, and he was supported by Lord Loch, Lord Lawrence, Professor F. Hobday, Admiral Sir S. Freemantle and Mr. McQuisten, M.P.

The speeches were eloquent, amusing and optimistic, and from the information given it appears that the past season was a great success, no fewer than 13,000,000 persons having passed the turnstiles and £160,000 having been paid in entertainment tax.

It was obvious that many of the "mushroom" tracks which sprang up, would be short-lived, and it was further agreed that now the "survival of the fittest" had been achieved, one could look forward confidently to much greater prosperity in the coming year.

After the excellent dinner, Lord Lonsdale and Lord Chesterfield, who were in another part of the building, were prevailed upon by Professor Hobday to come down and address the gathering. In view of Lord Lonsdale's previous decision never to participate in any way with matters associated with greyhound track racing, it was a sign of the times and a matter for congratulation that he did at last consent to be present. He even promised to attend a track and witness the racing.

Four veterinary surgeons were present, namely, Professor F. Hobday, Captain H. E. Cross, D.V.H., A.S.C., late of the I.V.S., Mr. Sams and Major Kirk. It is of interest to note that Professor F. Hobday has been appointed a steward of the N.G.R.C., in collaboration with Lord Lawrence and Mr. Sawtell.

U.V. RAYS AND RABIES.

"The latest discovery, by two French scientists, that U.V. rays have the power of nullifying the infection of rabies may be one of some importance, but so far only laboratory tests have been carried out, and while it is simple to counteract infectious matter in a test tube, accomplishing the same result in a human body is a very different proposition," says *The Actinic Practitioner and Electrotherapist.* "The Pasteur treatment is so complex and delicate that until recently all sufferers from rabies had to go to the institute for treatment. If, then, the present discovery can be successfully applied to human beings it will be a considerable achievement."

CLINICAL AND CASE REPORTS.

Experiences with the Stomach Tube.

By J. E. HUTCHINSON, M.R.C.V.S., Eccleshall, Staffs.

I discarded the nasal route for passing the stomach tube about three years ago, after having several unsatisfactory experiences, and I now always pass it through the mouth.

In one subject, a big Shire mare, the tube, with the slightest pressure, would insist on entering the larynx. I tried again some hours later with the same result.

In another subject, a big Shire gelding, the animal would not have the tube in his nostril and got very dangerous with his fore feet.

Another case developed a chronic foul-smelling unilateral discharge from the nostril, due, I presume, to injury to the turbinated bone.

I frequently also got hæmorrhage, which alarmed some clients.

I tried a strong strap for keeping the mouth closed, but I found that it slipped down in spite of the efforts of an assistant to hold it up.

I am now using an adjustable head collar, with an extra adjustable nose strap running through leather loops (attached below the usual nose band) four in number, viz., two at the sides, one at the back and one in front. The ordinary nose band is attached to the brow band at the front of the head by an adjustable strap, to give front support. The extra nose band is of strong pliable leather with a roller buckle, the strap being drawn as tight as possible. The fingers should then be passed into the interdental space to feel if the mouth is firmly closed.

Now lubricate the tube, turning the end slightly upwards, and pass along the back of the tongue, keeping the tube slowly moving until sufficient of its length has been passed to reach well into the œsophagus. In some cases a certain amount of gulping and possibly coughing takes place as the tube passes over the larynx. Proceed to pass along the tube by very slight withdrawals and slight pressure until it can be seen and felt in the lower region of the neck; then proceed as before until the stomach is reached, when crackling sounds will be heard at the other end of the tube. If the tube cannot be felt in the lower region of the neck, it will certainly be in the trachea whether there is coughing or not.

I have not had the tube pass into the trachea since I commenced using the oral route. The passage of the tube over the base of the tongue appears to make the animal swallow the tube; that is, if it is kept slowly moving.

When pumping a large quantity of fluid into the stomach I make a practice of resting for a minute or two after each gallon and also occasionally remove the tube from the pump to ascertain the amount of pressure in the stomach. If I find considerable resentment and a heavy flow from the stomach, I withhold any further administration for a few hours and then again try the pressure in the stomach. If the animal cannot take two or three gallons without resentment the obstruction is probably in the small intestines.

I do not repeat the dose for six or eight hours and not even then if the pain has gone and the pulse improving.

I usually combine the treatment with ½ gr. doses of strychnine, hypodermically, if the case is at all serious.

I have had several cases of superpurgation, occasionally lasting for several days, with complete loss of appetite and some temperature. These cases have generally arisen when the patient has received perhaps two pints or more of linseed oil or a drink containing aloes, before the salt and formalin treatment. The superpurgation cases have invariably recovered with dimol and bismuth carb. treatment—4 to 5 drs. of the former and 2 to 4 drs. of the latter, given three times daily in thick barley water.

The condition of the rectum on manual exploration is a good guide as to the probable prognosis before treatment is commenced.

The tube for the oral route should be more rigid and of a little larger diameter than the one for the nasal passage. The amount of salt and formalin I give varies from 6 ozs. to 12 ozs. of the former and 2 drs. to 6 drs. of the latter in 2½ to 5 gallons of tepid water, according to the class of animal.

In cattle I use the ordinary wooden mouth gag, holed in the centre. I find that the tube can be felt in the lower region of the neck if the trachea is gripped and an assistant moves the tube whilst one has the fingers and thumb in the jugular furrow. There seems to be a distinct difference between equines and bovines in that the latter cannot take large quantities of fluid rapidly pumped into the stomach without showing distress. In one of my earliest cases the cow dropped dead within a few minutes after receiving about four gallons of fluid.

Rupture of Peroneus Tertius.*

By Major Jean R. Underwood.

On March 31st, 1928, a horse from "A" Troop, 5th Cavalry, which had been ridden that morning in an exhibition ride over a rather stiff cross-country course for the benefit of pictorial news photographers, was brought to the veterinary hospital suffering from a rupture of the left peroneus tertius. This animal had blundered at a ditch jump, had landed with its left hind in the ditch, striking it against the far bank (probably in a state of over-extension)with such force that the tendon was snapped in two. The symptoms of the resulting lameness were so unusual in my experience that a description of them is thought to be of interest.

At rest the animal appeared normal and, despite the fact that it had walked more than a mile after the injury, there was no evidence of pain, no nervousness, sweating, nor increased respirations. The affected leg bore weight equally with the others and neither swelling nor sensitiveness to palpation was discernible. It was only during movement that anything abnormal could be noticed and then the symptoms were so startling that it seemed impossible that that member could bear any part of the animal's weight. As the affected leg was advanced the stifle was excessively flexed, the hock was over-extended, and the whole lower leg dangled helplessly in a manner suggestive of a low tibial fracture. Co-ordinate harmony of movement between the stifle and hock joints was absent. The tendo-Achillis was relaxed, flaccid and drawn into an S-shape. So marked was the deformity of this structure that it was at first thought that it had been torn loose from its muscular attachments and was the cause of the lameness. A little further thought on the function of the tendo-Achillis, particularly its function in opposition to the peroneus tertius, led to a correct diagnosis.

In the horse the peroneus tertius is entirely tendinous. Originating in the extensor fossa of the femur, it passes downward between the long extensor and tibialis anterior and is inserted by three slips into the large metatarsal and hock bones, uniting the stifle and hock joints in such a manner that movement of one joint results in movement of the other. It is only when the peroneus tertius is ruptured that flexion of the stifle without concurrent flexion of the hock is possible, The absence of swelling at the site of rupture is accounted for by the limited blood supply to the tendon and by the strong, tense, and inelastic fascia that envelopes its surrounding muscles.

No treatment other than confining the patient to a box stall was given and on June 9th, recovery being complete, the animal was returned to duty.

* Reproduced from the *U.S. Army Veterinary Corps Bulletin*, Vol. XXII., No. 6, pp. 239-240.

Meat and Milk Inspection in the City of London.

The Report of the Medical Officer of Health for the City of London for the period of six weeks ending December 31st, 1928, shows that 286 tons, 17 cwts. of meat and food were surrendered as unfit for human food in markets and shops. Of this total, 201 tons, 9 cwts. were imported frozen. The seizures represent, in November, 0.340 per cent. of the total weight of meat delivered at the Central Meat Markets and, in December, 0.379 per cent.

Court proceedings were taken in seven cases for offences under the Public Health (Meat) Regulations, 1924, and fines ranging from £10 downwards were imposed. The offences comprised: "Meat not adequately protected from contamination"; "Dirty vehicles used for the conveyance of meat"; and "Persons handling the meat not wearing a washable head covering."

Of forty-eight samples of milk collected at the railway stations on arrival in London, four (or 8.3 per cent.) contained tubercle bacilli. The bacteriologist reports that, as regards dirt, "The milks as a whole are remarkably clean as compared with what used to be the case ten years ago."

A table is given showing the percentage of tuberculous infection found in milk as it arrives in the City over a period of years from 1904 to 1928 inclusive. The highest percentage occurred in 1921 when 26.3 per cent. of a series of samples proved positive. In 1926, all samples proved negative. Over the whole period the average works out at a little over 8 per cent., which is in keeping with the experience of other large centres of population.

A record price for a bull for export, 3,100 guineas, was recently paid at the sale of Aberdeen-Angus cattle at Perth by Senor Guerrero, Buenos Aires. This was a May bull calf belonging to Mr. J. E. Kerr, of Harviestoun, Castle Dollar. Mr. James Sidey bought several good animals for export to Argentine. The Prince of Wales was also a buyer.

ABSTRACTS.

Veterinary Education in America.

As in Great Britain, the subject of education is troubling the veterinary profession in the United States, and two papers on this subject were presented to the annual meeting of the American Veterinary Medical Association last year. Dr. White, Dean of the Ohio Veterinary College, believes that, as yet, the veterinary profession is not grouped among the "learned" professions, largely on account of ignorance and a too-common habit of linking it with agriculture. "While to be sure," he states, "the veterinary profession is an aid to agriculture, it is no more so than any of the other professions. If linked up with anything, it should be with medicine, the profession which deals with diseases in the higher animal which we call man." Until a decade ago the entrance requirements to the veterinary schools in America were designed to permit the greatest number to matriculate and still maintain some sort of standard. Since the war, however, it has been raised; but, simultaneously, the standard for the "learned" professions has been raised still higher, to a point approximating to the European standards. The result is that their products are more mature, better trained, and better educated; they are more competent to enter professional life, with a broader outlook, greater confidence, more self-esteem and a better approach in meeting with people. The products of the veterinary schools should be able to meet the more educated class of layman on an equal footing with their physicians and lawyers. Dr. White considers that medicine is forging ahead of Veterinary medicine, because she is in a position to select her candidates while we must take whom we can, often the rejects of those who desire to study something else.

The American schools are inadequately staffed, housed and equipped and he is a strong believer in state support. In the United States, there are eleven recognised schools, with an average of only 61 students, the lowest boasting of nine. There are too few graduates working for higher degrees. Dr. White feels that until the schools have been improved, the entrance requirements increased and a healthy *esprit de corps* installed into the graduates, the veterinary profession in America will not be able to stand in favourable comparison with the output in the other "learned" professions.

Dr. Glover, Dean of the Colorado School, also pleads for progress. Whatever tends to establish fixed and rigid modes of thought tends to fossilize society. Too few students are entering the profession and this is in large part due to the meagre salaries paid by the Department of Agriculture—salaries, incidentally, which have recently been revised. He also believes in the value of strictly non-professional instruction. Sound professional knowledge with its scientific and biological basis, is of prime importance, but an ability to meet the world on its best social plane is not to be ignored in this utilitarian age. He considers that veterinarians, individually and collectively, should take a more active interest in breeders' and dairymen's associations and should be at one with all live stock interests. In the college curriculum, more attention should be paid to nutritional diseases. The time devoted to anatomy should be reduced and made more comparative. Finally, a federal licence to practice should be granted by a national board of examiners on the lines of the British Examining Board. Above all, students should not be attracted by making courses less difficult. Rather, standards should be raised consistently; and no doubt the leaders of to-morrow in our profession will be university men trained in veterinary medicine, sanitary science, animal husbandry and agriculture.—(*Jl. Am. Vety. Med. Assn.*, Feby., 1929, pp. 283-300).

[**Note on the use of B.C.G. in Prophylaxis against Bovine Tuberculosis.** C. GUERIN, in *Recueil de Médecine Vétérinaire*, March 15th, 1927, pp. 298—301. Ex *Revue Générale de Médecine Vétérinaire*, Aug., 1928.]

It was proposed to study carefully from what moment when vaccination is made in the fortnight after birth, the benefit of vaccination may be considered to be acquired.

Six Breton calves, aged about 7 months, free from tuberculosis, were used for experiment, five were inoculated subcutaneously in the dewlap with 50 milligrams of B.C.G. respectively 30 days, 20 days, 15 days, 8 days, and 1 day, before they, as well as one control, were all inoculated intravenously with 5 milligrams of virulent tuberculosis.

The result of this experiment showed that resistance to the inoculation was *nil* or incomplete up to the 15th day, but was acquired on the 20th day.

This space of 20 days, increased by the time elapsing between birth and vaccination, presents grave disadvantages in the case of badly infected stables, for it is incontestable that contamination of calves left in these stables may take place before the vaccination is effective.

Vaccination must therefore be attempted as soon as possible after birth, especially in very contagious surroundings.

The author relates an observation which is quite conclusive:—

A calf from a badly infected stable, vaccinated with B.C.G. on the first day after birth, when slaughtered, at the age of five months, showed very obvious ganglionic tuberculosis. It is certain that this calf was infected between the time of vaccination and that at which the consecutive advantage should be expected, *i.e.*, 20 days.

To avoid such eventual failures of vaccination, a single logical solution (which is, however, not very practical), imposes itself; that is, immediate isolation of calves after birth for a month in a disinfected stable, the boiling of milk and of food vessels.

These measures are not much in conformity with traditional habits, but are, however, necessary for rational prophylaxis. R. L. HIGGINS.

[**Note on Prophylaxis against Bovine Tuberculosis.** C. GUERIN, in *Recueil de Médecine Vétérinaire*, July 15th, 1927, p. 409. Ex *Revue Générale de Médecine Vétérinaire*, Aug., 1928.]

In children, the early intervention of B.C.G. in prophylaxis against tuberculosis is always accompanied by initial prophylactic recommendations; in the bovine

species similar indications should precede and accompany the use of vaccination in infected stables.

These indications consist of isolation and healthy feeding. Young calves should be isolated from birth in a healthy stable.

Two means can be used to insure that the food is healthy:

(1) The use of boiled milk, which constitutes the most reliable method, but perhaps in practice the hardest to secure.

(2) The use of milk from cows that do not react to tuberculin; feeding young calves with this milk would reduce to a minimum the risk of early contamination of alimentary origin. R. L. HIGGINS.

[**Avian Tuberculosis.** A. F. SCHALK, L. M. RODERICK, and H. L. FOUST (*North Dakota Sta. Bul.* 217 (1928), p. 95). Ex. *Exp. Sta. Rec.* Vol. 59. No. 9.]

In reporting upon transmission and sensitisation experiments it is pointed out that very few cattle become infected with avian tuberculosis under ordinary barnyard conditions, as evidenced by manifest tuberculosis lesions. Young cattle can readily be sensitised to avian tuberculosis by cohabitation with tuberculous fowls under ordinary barnyard conditions. Sensitisation in the absence of visible lesions is of a temporary nature, fading out within two to five months after removal from avian tuberculosis cohabitation. Sensitisation does not immunise cattle sufficiently to prevent subsequent re-sensitisation under similar cohabitation conditions. Cattle sensitised to avian tuberculosis in this manner do not react positively to bovine tuberculins.

Referring to the longevity of avian tuberculosis germs in barnyard soils, it is pointed out that both pigs and chickens will contract avian tuberculosis from contaminated barnyard soils after North Dakota winter weather exposure.

With reference to the susceptibility of young chicks to avian tuberculosis, it was found that chicks four to ten weeks of age in constant cohabitation with tuberculous birds from one to five months developed less than 1 per cent. of tuberculous infections. Chicks can be quite readily infected by feeding relatively large quantities of avian tuberculous organs or culture.

Rats fed upon fowl organs infected with avian tuberculosis transmit the disease to healthy chickens through their droppings.

Cattle can be sensitised to avian tuberculosis either through the scarified skin or by simple installation into the conjunctival sac of the eye by 0.0001 mg. of the culture.

With regard to control of this form of tuberculosis in farm flocks, it is stated that work continued over a period of several years in the testing of flocks with annual and semi-annual tuberculin tests shows that while it is possible to reduce the infection and loss materially it is impracticable in eradicating the disease.

[**The Eradication of Infectious Abortion from the Dairy Herd of Oregon State Agricultural College.** B. T. SIMMS, C. R. DONHAM, F. W. MILLER, P. M. BRANDT, and I. R. and R. C. JONES (*Oregon Sta. Bul.* 232 (1928), pp. 12, figs. 3). Ex. *Exp. Sta. Rec.* Vol. 59. No. 8.]

This is an account of eradication work with infectious abortion in the college herd into which it was introduced in 1915 through the purchase of infected pregnant animals. The attempts to control the disease through temporary isolation of aborting cows, cleaning and disinfecting the stalls and stanchions in which abortions had occurred, burning or burying aborted fetuses and membranes, and using different bulls for mating with the abortion-infected cows failed. The agglutination test proved to be a reliable method of diagnosis. It was found that infected cows did not always abort. The infected cows were unprofitable because they gave less milk, had more garget and more breeding trouble, developed more cases of chronic inflammation of the joints and lameness, and produced fewer live calves. The infected cows did not develop an immunity and the disease did not disappear.

The eradication was accomplished through separating fhe reactors from the non-reactors in 1922 by a distance of one mile to stop the spread of the disease, raising abortion-tree females to take the place of abortion-infected animals, removing reactors from the herd, cleaning and disinfecting the barn, and testing frequently and removing all new reactors before they became dangerous.

"The infected cows were bred to the herd sires which were used for the abortion-free animals. In such breeding operations the infected cows were never taken either into the bull pens or upon any ground to which abortion-free cows had access. Calves born from infected animals were isolated for six weeks and then placed with the calves from the abortion-free cows. The abortion-free herd was tested monthly and any reactors found were immediately removed and placed in the abortion-infected group. During the two years, ten reactors were found.

"Under this system of management the number of non-reacting females increased from 68 in September, 1922, to 101 in October, 1924. At this time the entire group of abortion reactors was sold to the department of veterinary medicine and the college dairy herd was finally rid of abortion-infected animals.

"Testing at regular intervals was continued. Four reactors were removed from the herd between October, 1924 and March, 1926. It is believed that these animals became infected through the use of feed which had been placed on a floor on which infected animals had been kept. During the last two years no reactors have been found."

The herd has since been protected from re-introduction of infectious abortion through preventing any contact in barns, pastures, or show rings between any females in the college herd and any other females not tested for abortion, and through preventing spread of infection by contact with the clean animals by caretakers or on feed.

[**Treatment of Ocular Affections by Intra-muscular Injections of Milk.** E. HOUDEMER, in *Revue Vétérinaire Militaire*, December 31st, 1927, pp. 400—412. Ex *Revue Générale de Médecine Vétérinaire*, September, 1928.]

Injections of milk have been used since 1915 (Schmidt) in human therapeutics for the most diverse diseases, and in particular for ocular affections (cases of pannus, corneal ulcers, ophthalmo-blennorrhœa). Pierot's thesis for the veterinary doctorate (1926) studies the method.

The treatment has been used in the Hanoi Veterinary School on fourteen patients: eight horses, three mares,

two mules, and one bitch, in four cases of periodic ophthalmia, nine of keratitis, and one of conjunctivitis.

The milk may be injected under the skin, and preferably, into the muscles, after sterilisation (10 to 20 cubic centimetres for the horse in daily injections).

The reactions of shock provoked by the injections are benign ; they consist of a general reaction from the 4th to the 6th hour, with high temperature, and a local reaction, manifested by an œdema more or less extensive.

It is in affections of the anterior segment of the eye that the efficacy of the treatment is best shown. It constitutes a simple anodyne remedy which should be tried in all cases where the usual treatments give doubtful or no results.

R. L. HIGGINS.

[The Inheritance of Resistance to Fowl Typhoid in Chickens. W. V. LAMBERT and C. W. KNOX (*Iowa State Col. Jour. Sci.*, 2 (1928), No. 3, pp. 179-187, fig. 1). Ex. *Exp. Sta. Rec.* Vol. 60. No. 2.]

The authors found that chicks hatched from parents both of which had survived an acute infection of fowl typhoid gave a total mortality of 40.9 per cent., and that chicks whose sire only had survived such an infection showed a mortality of 62.4 per cent., while chicks from non-tested parents showed a mortality ranging in different breeds from 82.5 to 98.1 per cent. The mortality rate in the groups from non-typhoid-tested parents was also much greater than that in the other two groups. The mortality rate in the chicks with single typhoid ancestry was greater than that of chicks with double typhoid ancestry. Evidence is presented to show that the lower rate of mortality in the chicks hatching from typhoid-surviving parents can not be due to chance alone. Significant differences were noted in the mortality of different breeds, but it is suggested that these represent strain rather than breed differences. Multiple factors are undoubtedly concerned in determining resistance to fowl typhoid in chickens.

[Physiological and Pathological Changes in the Ovary of the Cow and their Clinical Recognition. W. W. WILLIAMS (*Cornell Vet.*, 18 (1928), No. 2, pp. 116-134). Ex. *Exp. Sta. Rec.*, Vol. 59. No. 2.]

In this account the author deals with the ovarian cycle, duration of heat, rupture of the follicle, formation of the corpus luteum, detection of heat, regulation of the œstrual cycle, ovarian pathology, infection of the ovaries, functional diseases of the ovary, indications of diseased follicle; ovaries alternate in functioning, relation of corpus luteum to abnormal heat cycle, contributory factors influencing periodicity of heats, and nymphomania or cystic ovaries.

PLIMMER FELLOWSHIP IN PATHOLOGY.

Attention is directed to the forthcoming election, under the auspices of the Imperial College of Science and Technology, to the Henry George Plimmer Fellowship in Pathology, tenable at a recognised institution for pathological research, at home or abroad. The election will take place early in July, and intending candidates can obtain full information from the notice board at the R.C.V.S. or from the Secretary of the Imperial College of Science, South Kensington, S.W.7.

Colonel J. Irvine-Smith's Work in Johannesburg.

In a recent issue *The Sun and Agricultural Journal of South Africa*, pays the following notable tribute to the work of Colonel James Irvine-Smith, C.B.E., M.R.C.V.S., Director of the Municipal Live Stock Markets, Johannesburg :—

" In the admirable brochure on Johannesburg entitled 'A Sunshine City built on Gold,' which has been issued under the joint auspices of the Johannesburg Publicity Association and the South African Railways and Harbours Administration, attention has been directed to the Live Stock Market and Municipal Abattoirs, which play such an important rôle in the hygiene of this great city. Of course, the building up of such a great municipal service is not due to the efforts of any one man, but rather to a progressive and forward-looking Municipality. At the same time it is doubtful if these Abattoirs and Live Stock Markets would have developed to the same extent had it not been for the persistence of the Director, Colonel James Irvine-Smith, C.B.E., M.R.C.V.S., who is one of the foremost living veterinarians. Colonel Irvine-Smith is a Scotsman, and has crowded a great deal of practical and scientific work into his comparatively short life. He was Director of Veterinary Services in the Union Defence Forces during the South African War, and has been President of the South African Veterinary Medical Association, and is a Life Vice-President of the same body. Amongst his other titles he was a member of the Agricultural Advisory Board to the Minister of Agriculture, and Chairman of the Egg Export Commission ; and external examiner for the University of Witwatersrand, and Member of the South African Board of Examiners of the Royal Sanitary Institute.

" The facilities offered by the Johannesburg municipality to the live stock and meat industries have firmly established Johannesburg as the centre of the South African live stock and meat trade. Working in close co-operation with the South African Railway Administration, the Municipal Council has erected a large live stock market in which over a million and a quarter animals are handled annually, aggregating in value up to £6,000,000.

" Run conjointly with the Live Stock Market is the Municipal Abattoir for the slaughter of animals, which averages over 500,000 head annually. It is equipped throughout with the latest type of apparatus and labour and time-saving devices that permit of the expeditious handling of any quantity of carcasses.

" At the Abattoirs are the Municipal Cold Storage Chambers where large quantities of meat and other perishables may be stored at low cost and at any required temperature. From this plant consignments of meat and fruit are sent in refrigerator vans to the Coast for export overseas. In this connection it may be mentioned that Colonel Irvine-Smith has spent a great deal of time and trouble in encouraging the development of fruit growing on the small holdings of the Witwatersrand, by means of cold storage chambers, with the result that this area is becoming quite notable as an apple and peach producing zone.

" During the past year, the turnover in the Live Stock Market was approximately £4,238,052, while the total number of animals passing through the live stock market was 1,062,024, the total number of animals slaughtered in the abattoirs. It is of interest to note that, prior to the opening of the abattoir in the year 1909-1910, with a total number of animals slaughtered at 314,521 the total weight of meat condemned was 12,370lbs. or 6¼ tons, while to-day (1927-1928) the total meat condemned in the Johannesburg Abattoirs was 1,380,621lbs. or 690½ tons. The animals slaughtered in the Johannesburg Abattoirs for 1927-1928 numbering 541,007, were made up as follows: cattle, 110,509 ; sheep, etc., 347,143 ; calves, 11,721 ; pigs, 71,634 ; total, 541,007, while 844 sheep and goats were quarantined for scab out of a total number of 722,560.

" In passing it may be said that the Municipal Abattoirs have a useful scheme under which owners of cattle can in-

sure their animals against possible condemnation and do indemnify themselves against such risk by the modest premium of 1s. 6d. per head for cattle, while other animals, such as pigs, come under the same scheme according to their weight. Another matter worthy of mention is the new off-loading accommodation, approximately two miles in length, by which means some 500 trucks can be accommodated, eliminating any undue delay. The incoming animals are immediately divided into various classes, and a train load of cattle can be off-loaded within 15 minutes. Such figures clearly indicate the magnitude of the operations controlled by Colonel Irvine-Smith and the important work carried out by the Corporation staff in watching over the meat supplies of this great city."

Chadwick Trustee Travelling Scholarships.

Many of our younger professional men and women—whether their profession be medicine, engineering, architecture, nursing, surveying, or an allied calling—will welcome the invitation issued by the Chadwick Trustees to British subjects between 25 and 30 years of age, who have graduated in a British University or who can produce evidence of attainments or of intellectual equipment proving themselves to be capable of methodical study and research.

Such as these may make application for two Travelling Scholarships of £400 each to enable the holders to travel abroad during one year to study methods adopted in other countries for the prevention of disease and the improvement of the Public Health.

At the discretion of the Trustees the Scholarships may be renewed for a second year.

Prior to appointment a Candidate will be invited to submit for the approval of the Trustees a Scheme of Study and an Itinerary which he (or she) proposes to follow.

Full particulars may be obtained by writing to the Clerk, of the Chadwick Trustees at 204 Abbey House, Westminster.

The General Practitioner and U.V. Rays.

Dr. R. King Brown, who recently delivered a lecture before the Institute of Hygiene on the "Use and Abuse of Artificial Sunlight," is anxious for it to be understood that it is only because of his high regard for this branch of treatment, that he was at pains to emphasise the dangers of its improper application. He is distinctly of the opinion that U.V. irradiation can be a very useful ally to the general practitioner in large numbers of the cases which he is ordinarily called in to treat and he thinks that the more this fact is known, the better it will be for the nation at large. The dangers of unqualified "experts" using a powerful weapon, which can hurt as well as heal, is obviously very great, but Dr. King Brown does not advocate U.V. treatment being confined to the class of medical men commonly known as "specialists." "Excellent results," he says, "have been, and are being, achieved with this treatment in the hands of general practitioners who have studied the subject."—*The Actinic Practitioner and Electrotherapist.*

H.M. Stationery Office Publications.

The undermentioned have been published during the week. Copies can be purchased through any bookseller, or directly from H.M. Stationery Office, at the following addresses:—London: Adastral House, Kingsway, W.C.2., and 28 Abingdon Street, S.W.1; Cardiff: 1 St. Andrew's Crescent; Manchester, York Street; Edinburgh: 120 George Street.

	Price Net s.	d.	*post Free* s.	d.
House of Commons Bills.				
52. Exportation of Horses. To amend the Law with respect to the exportation of horses	0	1	0	1½
Command Papers.				
3273. Local Government Bill, 1928. Explanatory Memorandum on the Provisions of the Bill as passed by the House of Commons	1	0	1	1

DIVISIONAL REPORTS.

Midland Counties' Division N.V.M.A.*

Annual Meeting and Dinner at Birmingham.

Presentation to Mr. H. J. Dawes.

The annual meeting of the Midland Counties Division N.V.M.A. was held at the Grand Hotel, Birmingham, on Friday, February 8th. Mr. J. Cormack, of Coventry, the President, occupied the chair and there was a good attendance.

Nominations and Elections.—The Hon. Secretary (Mr. H. J. Dawes), on behalf of Major Brennan DeVine, nominated for membership of the Division, Mr. Harold Burrow, of the City of Birmingham Veterinary Department. On behalf of Mr. F. Chambers (Wolverhampton), who was absent through indisposition, the Hon. Secretary moved the election to membership of Mr. Kenneth A. Miles, of Husbands Bosworth, near Rugby. These were unanimously made.

The Royal Sanitary Institute Congress. Mr. W. E. Ison (Atherstone), President-elect of the Division, was appointed to represent the Division as a delegate at the annual Congress of the Royal Sanitary Institute, to be held at Sheffield next July.

Mr. Ison said he was not sure that he would be able to attend, and he was therefore authorised to send a deputy, if necessary.

Representation on the N.V.M.A. Council. The question of increasing the representation on the Council of the National Veterinary Medical Association, discussed at a previous meeting, was raised in a circular from the National Association. The circular, read by the Hon. Secretary, explained the circumstances in which the proposed reform was to be brought about. The Hon. Secretary said that at the last meeting of the National Association, Mr. Noel Pillers asked the meeting to reject the proposal, on the ground that twenty-five members of Council would have nothing to do with the Divisions and it would open the door to the election of men on the Council who would not have been selected for Divisional representation.

After some discussion on the matter it was resolved that the present proposal be condemned. It was suggested as an alternative that representation on the Council be increased by reverting to the old system of one representative for every twenty-five members of Council.

National Horse Association. The appeal for support by the National Horse Association of Great Britain, adjourned from the previous meeting, was brought forward and considered by the meeting. It was thought that the Division ought to be identified with it as far as possible.

On the motion of Mr. W. H. Brooke, seconded by Mr. Ison, it was resolved to become affiliated at an annual fee of one guinea.

World's Poultry Congress. The Hon. Secretary read a letter from Mr. L. C. Tipper, urging the Division to be represented at the forthcoming World's Poultry Congress, to be held at London in July.

* Received on 22nd February, 1929.

The advisability of sending a delegate was considered, and it was agreed that the matter be deferred until the next meeting.

Council's Report. The Hon. Secretary presented a report of a meeting of the Council, held earlier in the day, recommending appointments for office during the ensuing year. The Council also recommended that the next meeting of the Association be held at Nottingham, and that Professor Macqueen be invited to read a paper, the choice of a subject being left to him. The question of visiting the National Physical Laboratory at Teddington was deferred.

The report of the Council, with its various recommendations, was adopted.

ELECTION OF OFFICERS.

President. The next business was the election of officers, and the PRESIDENT proposed that his successor in the chair be Mr. W. E. Ison. Mr. Ison, he said, was one of the oldest members of the Division, belonging to a family well known in the profession. His regular attendance at their meetings and the interest he had always shown in the welfare of the Division qualified him in every way for the office.

The HON. SECRETARY said he wished to second the resolution. Mr. Ison ought to have been President long ago, and he was delighted that he had at length consented to act.

The resolution having been carried by acclamation, Mr. ISON said it was only by the persuasion of Mr. Dawes that he had yielded, but they could rely upon him doing his best.

Vice-Presidents. Mr. Cormack, as the retiring President, became senior Vice-President, and the two other Vice-Presidents to be elected were Mr. H. Tudor Hughes and Mr. J. W. Conchie (Kidderminster).

Hon. Treasurer. Mr. W. H. Brooke was unanimously re-elected Hon. Treasurer.

Hon. Secretary. The re-election of Mr. H. J. Dawes to this office was unanimously made.

Auditors. The auditors appointed were Mr. F. L. Gooch (Stamford), Mr. W. F. Aston (Shrewsbury) and Mr. S. M. Woodward (Birmingham).

Council. The following were elected members of the Council, together with the officers of the Division:—Messrs. A. McKenzie (Market Drayton), H. W. Steele-Bodger (Tamworth), Brennan DeVine (Birmingham), H. W. Dawes (West Bromwich), F. Chambers (Wolverhampton), H. B. Hiles (Worcester) and G. F. Banham (Stratford-on-Avon).

The Veterinary Inspectors' Committee was re-appointed, consisting of those members of the Division who are veterinary inspectors.

Resignations. The Hon. Treasurer announced that he had received the following resignations:—Messrs. T. Ludlow (Mansfield), T. Wilson (Nantwich) and F. E. Somer (Birmingham). The resignations were accepted with regret.

Treasurer's Statement. The Treasurer's statement of accounts, duly audited, was submitted to the meeting. This showed the receipts to have been £229. Members' subscriptions amounted to £63, and a balance of £96 was brought forward from the previous year. The balance now carried forward was £101.

The accounts were passed, and Mr. Brook, referring to certain members in arrears, said he wished all were as prompt in their payment as Mr. Mark Tailby, their oldest member and one of the oldest veterinary surgeons in the country. Although Mr. Tailby was not well enough to come amongst them, he maintained the liveliest interest in the affairs of the Division.

Several members thought they ought to send a message of good will to their old friend, and Mr. Over gave notice that at the next meeting he should move that Mr. Tailby be elected an honorary member of the Division.

Votes of thanks. Mr. ISON proposed a vote of thanks to the retiring officers for their services during the past year. They had had an excellent President, with Mr. Dawes a reliable standby, and it was thanks to them that the Division continued to prosper.

This was seconded by Mr. OVER and carried unanimously.

The PRESIDENT, replying for himself and his fellow officers, said he believed they all had the welfare of the Division very much at heart. He had certainly had a happy year himself, but for any success the Association had achieved he gave credit to Mr. Dawes. No Society could possibly have a better secretary.

Free Treatment for Poor People's Animals. The circular of the Royal College of Veterinary Surgeons, proposing co-operation with the R.S.P.C.A. in a scheme for the free treatment of animals belonging to poor persons, was read. On the motion of Mr. H. W. Dawes, it was resolved that it be discussed in committee.

Eventually a resolution was passed deferring further consideration until the next meeting.

The Annual Dinner.

In the evening the annual dinner of the Division took place, when ladies again graced the festive board. The retiring President (Mr. Cormack), who occupied the chair, held a reception with Mrs. Cormack, the company comprising Professor Gamgee, Dr. O. Charnock Bradley, Dr. Share Jones, Councillor A. J. Kemp, Dr. Davidson, Mr. and Mrs. Conchie, Dr. Douglas Heath, Mr. and Mrs. H. W. Griffiths, Mr. and Mrs. G. Smith, Mr. G. H. Livesey, Mr. and Mrs. Trevor Spencer, Mr. and Mrs. Steele-Bodger, Mr. and Misses Woodward, Mr. H. W. Dawes, Miss Dawes, Mr., Mrs. and Miss W. H. Brooke, Mrs. Frank Chambers, Dr. and Mrs. Martin Jones, Mr., Mrs. and Miss DeVine, Mr. L. W. Heelis, Mr. and Mrs. W. F. Aston, Mr. G. H. Leader, Mr. and Miss Ison, Mr. G. F. Banham, Mr. and Mrs. H. B. Hiles, Mr. and Mrs. C. J. Allen, Mr. and Mrs. Tudor Hughes, Mr., Mrs. and Misses Forysth, Major Rees-Mogg, Mr. J. Martin, Mr. and Mrs. Barker, Dr. Menton, Mr. and Mrs. H. J. Dawes, Lady Beaman, Mr. and Mrs. Gascoyne and Mr. and Mrs. Townsend.

Apologies for absence were received from Sir John M'Fadyean, Professors Hobday, Macqueen and Brayley Reynolds, Mr. L. C. Tipper, Mr. J. J. Burchnall, Dr. Seymour Barling, Dr. Graves, Messrs. E. Ringer, W. J. McConnell, T. J. Brain, W. Grasby, F. L. Gooch, T. Martin, M. Tailby, R. Hughes, J. Robertson, O. V. Gunning, J. White, J. A. Connell, J. C. Clifford, T. H. Hobson, F. Chambers, C. O. Langley, R. L. Phillips and others.

After the toast of "The King" had been duly honoured, Professor GAMGEE proposed "The Royal College of

Veterinary Surgeons," which he described as the Parliament of the Profession. He envied veterinary surgeons the fact that they possessed the one-portal system of admittance, whereas in the medical profession there were numerous examining and licensing bodies, running into dozens in England, Scotland and Ireland, with different standards of efficiency. But the great danger of a one-portal system for the medical profession was that it might bring it under the State. That would be a curse rather than a blessing, because as soon as the State stepped in, efficiency stepped out. He could not help regretting how little the public appreciated the work of the Royal College of Veterinary Surgeons. They did not realise that the veterinary profession was almost more important than the medical profession, because it was the first line in combating a number of diseases. It was responsible for the purity of many food supplies, and it aided in the fight against tuberculosis by ensuring that dairy cows were maintained in a proper state of health. For that reason, the public ought to support veterinary education more than they did. Camden Town ought not to be crying out for money as it was, and more ought to be done to encourage veterinary research.

Dr. SHARE JONES, in responding, at once joined issue with the statement of Professor Gamgee about the public attitude towards veterinary science. He said there never was a time when the public were more keenly alive to its importance than now. There was no branch of science that could make a greater contribution than theirs to the solution of at least one of our greatest problems or could help more in the development of the resources of the Empire. It was in that direction that the country's economic progress lay, and by increasing as well as improving the supply of milk and meat, veterinary surgeons were doing a great and patriotic work. He knew of no corporate body that was charged with more important duties or with greater responsibility; and members of the Council fully recognised this fact. They had been engaged during the past few months in overhauling the curriculum from top to bottom. with the great object of equipping their students in the fullest degree to satisfy the larger demands that were being made upon them. Dr. Share Jones also touched lightly on the effort that was being made to secure free treatment at the hands of the profession for the animals of poor people. With that effort, the Royal College was in the fullest sympathy. He was not going to discuss it in detail on that occasion, but he did appeal to the profession to trust the Council and to back them up in whatever they might propose.

Major GRAHAM REES-MOGG proposed "The Midland Counties Veterinary Medical Association," and said that, speaking from his experience as a past president of the Central Veterinary Society, he knew the value of such organisations to the profession.

The PRESIDENT, in reply, said theirs was one of the oldest, largest, and most vigorous veterinary societies in the country. It remained a great power for good in promoting the social as well as the professional interests of its members. The benefits to be derived from active membership were much greater than they appeared, and instead of a man shutting himself up in his own district, he urged him to co-operate with his fellows in forming a strong professional brotherhood. In addition to the instruction to be had in listening to the papers, he found in the exchange of opinions that his neighbours had much the same difficulties as he had himself. He was just concluding a very happy, and he believed successful year of office, which had been rendered possible only by the zeal and assiduity of their Secretary, Mr. Dawes, and the loyal support of the members generally, for which he wished to express his grateful thanks.

Mr. TUDOR HUGHES, in humorous terms, proposed "The Medical Profession," expressing pleasure at the happy relations subsisting between it and their own profession. He hoped this state of things would continue to their individual as well as to their corporate benefit, and said they had to thank Sir Clifford Allbutt and the study of comparative medicine for much. They had recently seen the result of team work in the matter of research by the discovery of a method of immunisation against distemper, whilst in their own separate spheres they were able to work on the friendliest terms.

Dr. DOUGLAS HEATH replied, also in humorous vein. He said he was brought up in the veterinary profession, his father and other members of his family being veterinary surgeons, and he only deserted it because the practice of medicine seemed very much easier. Still, they were learning much one from the other. He was specially pleased to see the results of veterinary experiments with iodine. He used it a great deal in medical treatment, and was interested to read how satisfactorily it had worked in the treatment of many animal diseases.

PRESENTATION OF A GOLD CIGARETTE CASE AND SILVER ROSE BOWL TO MR. H. J. DAWES.

"Ladies and Gentlemen," the PRESIDENT said, "A most pleasant duty has fallen to my lot this evening. The making of a small presentation on behalf of this Society to our esteemed friend and Secretary, Mr. H. J. Dawes. (Applause). I can assure you that I consider it a great honour to be acting as President of this Division at the time (although it may be somewhat belated) Mr. Dawes' services are being recognised.

"Mr. Dawes has now been Secretary for thirty-seven years, a truly remarkable record, and I am sure, one which has not been surpassed by any in connection with one of our Societies; just think of the time—37 years! Mr. Dawes was sending out notices convening the meetings, reading the agendas, keeping the Presidents up to scratch and performing the other multifarious duties of his office whilst many of us younger men were still being pushed out in our perambulators and before any of the ladies present, at least to judge by their appearance, were even born. (Laughter.)

"In Mr. Dawes we have an ideal secretary. He has the ability, the tact, the pleasing manner and devotion to duty, combined with unbounded enthusiasm for the welfare of the Profession. Throughout all these years these qualities have been brought to bear on the welfare of the "Midland" and in no small measure form the secret of success of this old Association, for it is upon the Secretary that so much depends, the duties are by far the most important of any office connected with it. Mr. Dawes' ability as a success-

ful Secretary have been so well recognised that he was appointed Hon. Secretary of the National Veterinary Association of Great Britain and Ireland, of which body he is a past President. (Applause).

" Mr. Dawes must be one of the best known men in the profession, for, in addition to the numerous offices I have mentioned, he has been an examiner for the R.C.V.S. for many years and probably ranks second, in point of length of service, on the Board of Examiners of that body. The time devoted to these offices must have been very great and we should show some lack of understanding if we did not realise that such time could not be given up without some sacrifice on the part of Mrs. Dawes. (Applause). My impression of Mrs. Dawes is that she is just as keen on the welfare of our profession as her husband, and doubtless has made her sacrifice willingly. It is because of this that one of the articles chosen is of a domestic nature, and one in which Mrs. Dawes will, at all times, be able to feel a personal interest.

" The intrinsic value of the gifts is not great, but it is the spirit of appreciation, of gratitude and love with which they are given that denote their true value. May I, on behalf of the Midland Counties Veterinary Medical Association ask you to accept these mementoes, and to express the hope that you will be long spared to enjoy them ? We are glad you have again accepted office and trust you will continue to carry on the good work." (Loud applause).

The healths of Mr. and Mrs. Dawes were then drunk with musical honours.

Mr. DAWES, who was very much touched by this expression of good will, said that was one of the proudest moments of his life. He appreciated their kindness more than words could express, and he should look upon those gifts as heirlooms in his family. It was the love of his profession that had carried him on in his work for the Society, and he could boast that only once during his long secretaryship had he been absent from any meeting. There had been wonderful changes during that period, and he had seen the membership treble itself, whilst there were only about five belonging to the Society to-day who were members when he joined it forty years ago. Reference had been made to men not joining the Society, but all he could say was that whatever success he had achieved in his profession was to be attributed to his membership of the " Midland." It had been a pleasure to him to see it grow, until they now had 140 members. The attendance was invariably good, and the discussions well sustained. Some excellent young men were coming along, who made good speeches, and delighted the older ones by the intelligent interest they took in the various subjects. Speaking for himself (Mr. Dawes added, in conclusion), as long as his health was spared him it would be a pleasure to him to continue as their secretary, the duties being rendered all the more pleasant by the loyal co-operation and good will of the members. He thanked them again for the sentiments that moved them to make this presentation, which he never expected, for love of his profession had always been a sufficient incentive. (Applause).

THE " NATIONAL " TOASTED.

Dr. DAVIDSON proposed the toast of " The National Veterinary Medical Association." It was formed, he said, for the advancement of veterinary medical science, and for the transmission of such fresh knowledge as was acquired to all who might benefit from it. When in Edinburgh he had an intimate association with students at the Veterinary College, with whom he was on the best of terms, and the same spirit of cameraderie was to be seen to-day now that they had gone out into the world. An Association such as the " National " was the mouthpiece of the profession, enabling it to speak with a united voice on all that pertained to its welfare, and it was in the interests of veterinary surgeons that this was so. They had had legislation affecting the profession, and it was probable that there would be more in the near future, which made it all the more necessary that they should band themselves together for their own defence. He envied the veterinary profession because of the ease with which they mastered the problems that came before them. If a doctor looked wise and kept quiet, the patient would diagnose his own ailment, and even say what sort of medicine he needed, but the veterinary surgeon was not so fortunate. His patients could tell him nothing, which made his successful treatment of a case all the more remarkable. In that respect the National Association had another important function, for when a student gained his diploma and was let loose upon the world without any experience of the pitfalls that awaited him he was admitted a member of the Association, to which he could always turn for guidance.

Dr. O. CHARNOCK BRADLEY, who responded, said the National Association, in some respects, was more important from the point of view of the general practitioner than the Royal College of Veterinary Surgeons itself. If their Association was not one great professional brotherhood, it failed in the object for which it had been formed. He thought, however, that it fully answered that description, and it was able to make its voice heard in the land. He agreed with Dr. Share-Jones that the public was not unmindful of the great work which the veterinary profession was doing. Of that there was evidence in the work of the Departmental Committee that had been considering the colonial veterinary service, and also in the move for the reconstruction of one of the veterinary schools. Those two movements were of the greatest significance as showing that veterinary science was being recognised, not perhaps at its full value, but nearer to its full value than ever before. The National Association was intended to be the voice of the general practitioner rather than the voice of the specialist, and he could promise that action would be taken, wherever possible, to ventilate and to remedy whatever grievance he might have.

Other toasts were " The Visitors," proposed in felicitous terms by Major DEVINE and acknowledged by Councillor KEMP and Mr. G. H. LIVESEY, and " The Ladies," proposed by Mr. ISON and responded to by Lady BEAMAN.

H. J. DAWES, *Hon. Secretary.*

In the treatment of the external auditory canal, harsh swabbing should be avoided. Patient softening of excretions and gentle wiping is the preferable procedure. The lesions are frequently aggravated by harsh treatments.

Dumfries and Galloway Division, N.V.M.A.*

OFFICERS ELECTED AT DUMFRIES MEETING.

A meeting of this Division was held in the Station Hotel, Dumfries, on December 18th, 1928, Mr. R. C. Robinson (President) being in the chair. The following members were present:—Messrs. J. G. Bell, R. Simpson, A. J. Milligan, W. L. McKenzie, D. F. Wishart, F. A. Davidson, G. A. Sangster, G. D. Davidson and A. Young (Hon. Secretary).

Visitors.—Professor Mitchell and assistants, Messrs. O. Stinson, W. Robinson, W. Milligan and Steel.

Previous to the meeting, Professor Mitchell gave a surgical demonstration on canine subjects, at Whitesands. The first operation was an hysterectomy and it was an especial treat to watch the Professor's methods and technique. His very lucid description of each step in the operation, from the preparation of the subject until the completion, was much appreciated by his audience. The removal of a tumour was the second item. This was done under a local anæsthetic, the patient having previously received a subcutaneous injection of morphia. This operation was also followed with keen interest.

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The minutes of the last meeting, as published in the *Record*, were taken as read.

Correspondence.—(1) Apologies for absence from Messrs. Hewetson, Croudace, Edgar, MacAlister and Waddell.

(2) From Professor Russell Greig, thanking the Division for making him an honorary member.

(3) From the Council of the N.V.M.A., apologising regarding the publication of legal opinion on Mr. Milligan's resolution.

(4) From the Scottish Ministry of Health, replying to the N.V.M.A. on Mr. MacAlister's resolution.

(5) From the Secretary of the N.V.M.A. *re* Local Government Reform (Scotland), asking the members to formulate any proposals they had to make with regard to the Bill, for the information of the Council of the N.V.M.A. After discussion, it was decided that no proposals be sent, as the members were not affected by the Bill to any extent.

(6). From the National Horse Association asking the Division to become a subscribing body. It was agreed that this be left over until the next meeting.

ELECTION OF OFFICE BEARERS.

President. The President (Mr. R. C. Robinson) was asked to continue in office for another year, but Mr. Robinson, while thanking the members for the honour, could not see his way to continue in the office. Mr. Milligan then proposed Mr. Robert Simpson as President for the ensuing year, Mr. T. A. Davidson seconded and the proposition was carried unanimously. Mr. Simpson thanked the members for having elected him to the chair.

Vice-President.—Mr. A. Young.

Hon. Secretary and Treasurer.—Mr. F. A. Davidson.

Auditors.—Messrs. Sangster and Wishart.

New Member.—Mr. O. Stinson (Appleby) was proposed as a new member by Mr. Milligan, and seconded by Mr. Bell, and the election was unanimously made.

M. ROBINSON proposed a hearty vote of thanks to Professor Mitchell for his surgical demonstration. It had been a real treat to them all and they were all deeply indebted to him. He hoped they would have the pleasure, on some future occasion, of seeing Mr. Mitchell operate on some of the larger animals at one of their meetings. He wished also to thank his assistants for the able way in which they had helped to make the demonstrations the success they had been. Professor MITCHELL, in acknowledging the vote of thanks, said it had been a pleasure for him to come there that day and demonstrate to them; and he would always be delighted to do what he could for them on any future occasion.

Mr. MILLIGAN proposed that Professor Mitchell be made an honorary member of the Division. Mr. Young seconded, and the proposal was carried with enthusiasm. Professor Mitchell thanked the members.

Next Meeting.—It was agreed that the next meeting of the Division be held in Penrith on the last Thursday in June, 1929.

It was further decided that the meeting be held before lunch and that the afternoon be spent in a trip to places of interest in the Lake District.

Mr. OSCAR STINSON (Appleby) then demonstrated "Rothera's" test, for acetone in the milk, of cases of suspected acetonæmia or post-partum dyspepsia, where the characteristic odour was absent from the milk. His remarks were followed with much interest by the members present and a very instructive informal discussion followed.

A. YOUNG (*Hon. Secretary*).

* Received on 18th February, 1929.

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

Aug. 31st to Sept. 6th—N.V.M.A. Congress at Ayr.

Mar. 18th—Meeting of the Editorial Committee, N.V.M.A. (4-30 p.m.), 10 Gray's Inn Square W.C.

" 21st—Annual Meeting of the Western Counties Division, N.V.M.A., at Exeter.

" 27th—Combined Meeting of the Comparative and Neurology Sections of the Royal Society of Medicine, 1 Wimpole Street, W.

PERSONAL.

Appointments.—Mr. N. R. Reid, B.V.Sc. (S. Africa), M.R.C.V.S., has been appointed to Tanganyika Territory as a Veterinary Officer.

Mr. Clement Elphick, M.R.C.V.S., Veterinary Officer for Northumberland County, has just been appointed Official Veterinary Inspector for the Counties of Cumberland and Northumberland, under the Hunters' Improvement and National Light Horse Breeding Society.

Mr. John C. Grant, M.R.C.V.S., who has been appointed lecturer in veterinary hygiene in Aberdeen University, is a son of Mr. Grant, station agent, Cromdale, Strathspey. He qualified at Edinburgh in 1923. Afterwards he was an assistant to the late Mr. Laing, Elgin. Further experience was gained at various places in the North of England. In 1925 Mr. Grant was selected as successor to Mr. William Brown, and since Mr. Brown's death Mr. Grant has had charge of the department. Mr. Grant has acted in an advisory capacity and given lectures throughout the College of Agriculture area—from Kincardine to Skye and Orkney and Shetland.

R.C.V.S. Obituary.

Blake, John Vickers, Ryde, Isle of Wight. Graduated, London, 29th April, 1867. Died, 6th March, 1929, aged 82.

Bruce, Arthur Muir, 53 Park Street, Hull. Graduated, N. Edinburgh, 16th July, 1897. Died, 2nd March, 1929, aged 57.

Tuberculosis in Wild Animals.

The existence of tuberculosis in wild animals living under natural conditions is practically unknown; a few instances have been recorded in ground squirrels in California. Messrs. R. Painè and G. Martinaglia, of the South African Veterinary Service, now report cases among wild buck in the Albany District of Cape Province (*Journ. S.A. Veter. Med. Assoc.*, vol. I, No. 2, 1928, p. 87). Five cases were met with in the kudu antelope (*Strepsiceros strepsiceros*) and one in a duiker ewe (*Sylvicapra grimmi*). Five out of the six cases were fully investigated and yielded the bovine strain of the tubercle bacillus.

Horses in the Army.

The requirements of the Army in horses and mules for the next twelve months have been fixed at 17,796, or a further reduction of about 800. Owing to mechanisation, both the Cavalry and the Artillery will maintain fewer horses this year, and the gradual extinction of the horse transport companies of the R.A.S.C., two of which will be disbanded this year, leaves the corps with 747 animals, or 1,000 less than formerly. In the last pre-war year the Army had 29,000 horses and mules, and this number was on the establishment when the Army was reformed in 1922-23. In five years 6,000 animals have been struck off the strength. The main requirements for 1929 are 4,832 for the Cavalry, 6,507 for the Artillery, 662 for the Engineers, 870 for the Signals, and 2,316 for the Infantry.

CORRESPONDENCE.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents

"The Position and Prospects of the Veterinary Profession."

To the Editor of The Veterinary Record.

Sir,—Having read Professor James Macqueen's Presidential Address, and the remarks of those who followed him, I find myself impelled to contribute something to the discussion.

Beginning with the departments of knowledge which a veterinary surgeon ought to possess and which are not adequately taught to the student at the schools (those specially referred to were (*a*) Breeds and Breeding, and (*b*) Forage Crops as seen growing on the land, but there are many more), there are very real practical difficulties to be met, and some of these at least did not come clearly to the fore at the meeting of the Central Division on February 7th.

Bye-laws 59-97, governing the Membership Examinations and the Second Schedule giving the Syllabus of Subjects, lay down between them a formidable curriculum of four years' hard work. It is true that if teaching were restricted to the minimum periods laid down in the Bye-laws the students' time would be largely unoccupied, and also true that the prescribed terms of ten weeks each leave plenty of time for vacations; but we have found it necessary at Glasgow to exceed the minimum hours by 56 per cent., and to add six weeks to the College year. Even with that expansion the course is all that the average student can compass in the time, and by the average student I mean one with a sound secondary education, moderate ability, but with very sustained industry and application.

I should suppose that no teacher confines himself quite strictly to the Syllabus laid down in the Second Schedule, but with the wide scope of the Professional Examination in view he cannot afford to stray very far afield, and it appears to me that individual colleges are being set a very difficult task if they are to be asked to insist on additional subjects which find no place in the Schedule for the Membership Diploma.

On students of superior ability and retentive memory heavier burdens can be laid without much difficulty, but I have grave doubts whether any additional study taken concurrently with the Membership Course is beneficial. I am not sure if, for instance, one who has taken the London B.Sc. in Veterinary Science is so efficient later on, or indeed knows as much, as one who has extracted the full benefit from the Membership Course and from that only.

It seems to be well recognised by the Committee on Curriculum that the existing Membership Course is arduous enough and that there are only two possible ways to improve it—either to make for each addition a corresponding subtraction and maintain the time at four years, or to make the necessary additions with more freedom and allow five years for the completion of the course. The Committee had already considered fully the question raised by Mr. Henry Gray, that of relieving the pressure by requiring Chemistry and Biology to be taken as pre-registration subjects, but rejected this course for a number of reasons, the most cogent being the fact that adequate training in Biology was available in very few places. It is, however, possible that this deficiency will be remedied before the Committee completes its work.

As the Committee carries on I foresee expansions, not so much in lecture subjects, but in demonstrations and in actual student work both in the laboratory and in the field. With this tendency I have every sympathy and within limits I shall support it, but practical work takes time—a great deal of time—and where the time is to come from is not at present evident.

The question of how far the Membership Curriculum can prepare students for careers of special and widely differing types is closely linked up with the question treated towards the end of Professor Macqueen's address, the Progress and General Outlook of the Profession. On one aspect of this question, the prospects for success of the recently-qualified man, I can speak with some special knowledge. Since I began the employment scheme, which involves a weekly advertisement in your columns, I have written to all those qualified from Glasgow since July, 1924. They are 61 in number, and of these four are at present engaged in taking advanced courses, leaving 57. Sixteen are in salaried appointments, mostly official; thirty-six are in general practice, fourteen on their own account, and twenty-two as assistants. One is with his father, a missionary in Morocco, but is, I understand, engaged in veterinary help to the tribesmen; one is *en route* to South Africa, and will start a practice at or near his father's farm. From two I received no answer, but as I offered them employment I conclude they are already engaged. One excellent man is at home recovering from influenza, and I feel confident of placing him as soon as he is fit.

Surely this record ought to cheer up Mr. Henry Gray. The outlook was never so bright. The shortage of men to fill public appointments will increase, and it will tax the Colleges for years to come to turn out enough students of the right kind.

The demand for assistants is also very brisk. The fact that so many have to live in makes the personal factor one of considerable importance. In this part of my work some diplomacy is needed, and changes are often for the benefit of employer and assistant alike. If employers would only look ahead, and when possible notify me some weeks or months before they need a man, I would have a better chance of satisfying their demands.

It is curious that the advertisement has brought no response whatever with regard to student assistants for the holidays. I have to place these by direct correspondence or personal interviews.

I will finish, as I began, on the question of curriculum. This great call for young qualified men places the Colleges and the Examination Committee of the R.C.V.S. in a very strong position. They can resist special demands; they can take a broad view of their duty—to give the student a sound basic training in the Membership Course so as to turn him out with the knowledge and skill and with a little of the experience needed in general practice, but so grounded that he is fit material to benefit by special instruction. The Colleges are already giving the additional training needed for Home Veterinary Officers, though we at least find it a heavy financial burden. The Colonial Office in their recent Report have recognised that if they call for men with special knowledge they will have to establish a special school, and the Research Institutes also must recognise that in some way they will have to provide facilities for the training of their recruits.

All these veterinary avenues are attractive, and some of them are going to be quite profitable, but it will never be possible fully to equip the young member to take any of them at choice. His preparation must come after qualification, and must then fit him for one avenue alone.

Yours faithfully, A. W. WHITEHOUSE, Principal.

Glasgow Veterinary College,
83 Buccleuch Street,
Glasgow, C.3.
5th March, 1929.

Sterility in Bloodstock.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—Last week *The Times* published some very interesting notes compiled from *The Bloodstock Breeders' Review*. The following figures are given:—

Out of 721 mares mated with the 21 most expensive thoroughbred sires in the country, no fewer than 193 proved barren. In addition there were 67 abortions or dead foals. Taking a larger number of sires and mares, the percentage of barren mares is given as over 30.

The *Times* correspondent then proceeds to point out the extra fertility of sires coming from certain families, *e.g.*, "Bend Or." Unfortunately he takes no account of that factor which undoubtedly plays a most important part in all breeding, *viz.*, the fertility or otherwise of the female. All that is said regarding the mares is that they were "approved" and not maidens.

Sterility in thoroughbred stock of all descriptions is one of the great problems confronting the veterinarian to-day. Will not some of our members who are brought into close contact with these particular aristocratic families of British bloodstock give their views on the subject of sterility?—Yours faithfully, G. VERNON TYERMAN.

110 Corve Street,
Ludlow, Salop.
4th March, 1929.

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TO THE EDITOR OF THE VETERINARY RECORD,

Sir,—In the leading article in last week's *Record* I was disappointed to find that the writer did not deal from a critical point of view with the allotting of "King's Premiums." Personally I was very interested in the judging of "King's Premiums," and "Super Premiums," and under the existing rules very little criticism could arise as to the placings.

The present policy of granting premiums to twenty-year-old horses is certainly open to considerable doubt from the genetic aspect, for the question arises, does an animal of that age retain his virility throughout the mating season, when travelling from place to place over a wide district, and perhaps serving six or seven mares in one day, and some of those getting on in years? It is not at all surprising that much disappointment has arisen to the owners of such mares, when they have not proved in foal or the progeny has been weakly and hard to rear.

Horses of this age, in my opinion, should be passed over for younger animals. They should still prove useful when mated with selected young mares.

I feel sure that if such a policy was adopted there would be a greater quantity of good young stock about the country.

I am writing this in the hope that a beneficial discussion may follow. Yours truly, J. WILLETT.

7 Harley Place,
N.W.1.
11th March, 1929.

Udder Inflation in Milk Fever.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—During the discussion on Mr. Spicer's paper on "Milk Fever," as recorded in *The Record* for March 2nd, it was stated that "a moderate degree of inflation will cause a cure and the cow to regain the normal." This is not my experience, and twice this year I have had to re-inflate the udder when some five or six hours after the original inflation no improvement has been observed in the cow's condition. The first case occurred in an old cow that had milk fever last year. The cowman informed me that one of the quarters was not "right" so I did not inflate this one. On paying a second visit, some five hours later, it was obvious that the cow was much worse. All four quarters were then well inflated and the teats tied. A rapid improvement took place and the cow soon got to her feet.

The second case occurred a few days ago. I was called out during the night (1-30 a.m.) to a cow that had produced her fourth calf some eighteen hours previously. The temperature was subnormal, and she was very unsteady on her legs. The udder was inflated whilst standing and the teats were not tied. The pump was not working very well and I left the case not quite satisfied in my mind that I had put enough air into the udder. I went back at 9-30 a.m. and found that the cow was down and could not get up. The udder was again stripped out and this time was well inflated with another pump. The teats were tied. The cow got to her feet four hours later and immediately commenced to feed. I have seen so many similar cases that I am firmly convinced that the tighter one pumps up the udder the sooner the cow will get well

Yours faithfully, FRANK CHAMBERS.

4 Market Street,
Wolverhampton.
11th March, 1929.

The Mavor Family.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—We are anxious to trace the descendants of Alexander Mavor, a veterinary surgeon, who qualified at the Royal College of Veterinary Surgeons in May, 1849, and who died in 1902 at 91 Park Street, Grosvenor Square, London.

We are also desirous of getting into touch with the relatives of the following veterinary surgeons:—

Frank Frederick Mavor, 91 Park Street, Grosvenor Square, and afterwards 19 Stourcliffe Street, Edgeware Road. Qualified, April 1880, died February 27th, 1916, aged 60.

Frederick Joseph Mavor, Coursers, Colney Heath, Herts. Qualified, London, 18th December, 1850, died about 1913.

William Mavor, qualified July, 1829 Lond., died 1864.

William Mavor, qualified Lond. 1843, died 1878.

If any of your readers could help us by supplying us with the addresses of any relatives of these families, we should be most grateful.—Yours faithfully,

BAILLIÈRE, TINDALL AND COX.

8 Henrietta Street,
Covent Garden,
London, W.C.2.
9th March, 1929.

The Editor acknowledges the receipt of the following:

Report of a meeting of the West of Scotland Division, N.V.M.A., from Principal A. W. Whitehouse, Hon. Secretary.

Communications from Mr. W. P. Blount (Edinburgh), Dr. A. L. Sheather (London), and Colonel G. K. Walker (Abingdon).